

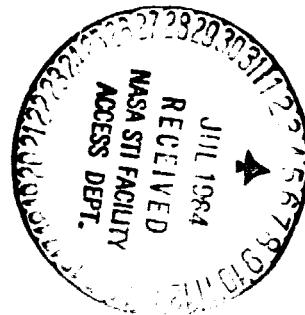
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# TOPEX ORBITAL RADIATION STUDY



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## 1. Introduction

At the request of the TOPEX Project Office, a comprehensive study was conducted to define the space radiation environment of the TOPEX spacecraft for a mission duration of 3 years and a tentative launch at 1989.2. For practical and economy reasons, a single trajectory was considered.

Following the precedent established with previous studies, the external (surface incident) charged particle radiation, predicted for the satellite, was determined by orbital flux integration for the specified trajectory (see section 3). The latest standard models of the environment were used in the calculations (see section 5). Because the launch epoch falls into the active phase of the solar cycle, the evaluation was performed for solar maximum conditions.

Magnetic field definitions for the nominal circular trajectory were obtained from a current field model.

Spatial and temporal variations or conditions affecting the static environment models were considered and accounted for, wherever possible.

The spacecraft exposure to cosmic rays of galactic origin is evaluated over its flight-path through the magnetosphere in terms of geomagnetic shielding effects, both for surface incident heavy ions and for particles emerging behind different material thicknesses.

Limited shielding and dose evaluations were performed for simple infinite slab and spherical geometries.

Results, given in graphical and tabular form, are analyzed, explained, and discussed. Conclusions are presented and commented on.

## 2. SPECIFICATION OF ORBITS

The analysis was based on nominal circular orbit with an altitude of 1334 kilometers and with an inclination of about 63 degrees.

## 3. GENERATION OF TRAJECTORIES

A flight path ephemeris was generated for the selected orbit with the GEODYN-BLCONV System<sup>1</sup> for a trajectory of 24-hour duration defined at 1-minute intervals. The length of the simulated orbit time and the integration stepsize were especially selected so as to provide sufficient point density to insure an adequate sampling of the ambient radiation environment when flying the trajectory through the models. The trajectory was subsequently converted from geodetic polar to magnetic B-L coordinates with McIlwain's INVAR program of 1965<sup>2</sup> and the field routine ALLMAG<sup>3</sup>, which now utilizes the BARRACLOUGH 1975 field model<sup>4</sup>. The field computations were extrapolated to the tentative mission epoch of 1989.2 with linear time terms representing secular variations of the field.

#### 4. FLIGHT PATH EXPOSURE TO TRAPPING DOMAINS

The investigated flight-path configuration displays a significant characteristic of high inclination orbits in magnetic L-space: they traverse the entire terrestrial radiation belt twice during each revolution, moving back and forth through regions of low L values (the inner zone:  $1.0 < L < 2.8$ ), regions of high L values (the outer zone:  $2.8 < L > 12$ ), and regions outside the trapping domain (external). Occasionally, some revolutions will also enter regions of space where no particle trapping can occur because of atmospheric cut-off conditions; that is, trajectory segments may have a combination of magnetic B and L values that place them outside the atmospheric cut-off limits of the models.

These excursions and the "external" visitations afford the satellite an amount of flux-free time, which may be of substantial duration (see section 12, C).

#### 5. TRAPPED PARTICLE ENVIRONMENT MODELS

The fluxes in this study were obtained from current NSSDC models: the solar maximum AE6 for the inner zone electrons<sup>5</sup>, and the interim model AEI7 for the outer zone electrons<sup>6</sup>, and the solar maximum version of the new AP8 model<sup>7</sup> for energetic trapped protons. It should be noted that the interim AEI7 does not reflect solar cycle variations in its present state. However, this model was issued in two versions, the AEI7-HI and the AEI7-LO, in order to account for differences in the data sets used in their construction. The AEI7-LO was used for this effort. All models describe an average static environment at a given epoch.

#### 6. ORBITAL FLUX INTEGRATIONS

Orbital flux integrations were performed with the UNIFLUX<sup>8</sup> and the SOFIP<sup>9</sup> systems. UNIFLUX provided exposure times with B-L breakdown, while SOFIP provided the dose and shield data.

#### 7. GEOMAGNETIC SHIELDING AND SOLAR FLARE PROTONS

Low inclination orbits experience a significant amount of geomagnetic shielding from cosmic rays of solar or galactic origin in the energy range  $E > 10$  MeV. However, at 63 degree inclination, the TOPEX spacecraft will only intermittently be shielded from the unattenuated interplanetary cosmic environment, including solar flare proton intensities of all energies above 10 MeV.

Usually, geomagnetic shielding effects on geocentric missions are being evaluated with simple rigidity considerations because of substantial diurnal variations in the cutoff latitude associated with geomagnetic tail effects (2-4 degrees) and storm-induced changes ( $> 4$  degrees). The simple analysis used here assumed that energetic solar protons of all energies above 10 MeV have free access to all magnetospheric regions external to a dipole shell of  $L=5$  earth radii, which is equivalent to a cut-off latitude of about 63 degrees.

Predictions of solar flare proton fluxes at 1 AU are obtained as a function of mission duration  $\tau$  and confidence level  $Q^*$  on the basis of a probabilistic analysis<sup>10</sup> using a modified type of Poisson statistics by a computerized model SOLPRO<sup>11</sup> that includes the distinction between "ordinary" (OR) and "anomalously large" (AL) events and the probability of occurrence of the latter. Both AL-and OR-event fluences are non-linear functions of  $Q$  and  $\tau$ .

For these predictions, only high quality comprehensive satellite measurements (not ground observations) were used, covering almost the entire 20th solar cycle. There have been indications that descriptions of the solar flare environment in interplanetary space (at 1 AU), derived from interpretations and extrapolations of ground-based measurements, have not been very accurate.

It should be noted that the statistics cannot predict when an AL event will occur; only the probability that one will occur in a given length of time. And it must be remembered that a single AL event will impart its total fluence within two to four days.

This implies that for unmanned satellites with mission durations of  $\tau > 1$  year, OR-event fluence are not significant because probabilistic theory predicts the possible occurrence of at least one AL event, even for the lowest allowable confidence level ( $Q=80\%$ ).

Incidentally, to a first approximation, the solar flare proton fluxes may be considered omnidirectional and isotropic, probably to within 10-15%.

#### 8. FLUX DATA: TYPE, QUALITY, AND VARIATIONS

The trapped particle flux data available from the models represent omnidirectional, integral intensities that one would expect to obtain as average values over periods of time in excess of six months. But over most regions of magnetospheric space ( $L > 2$  earth radii), short term excursions can vary from these values by factors of  $10^2$  to  $10^3$ , depending on the particle energies and on the type and intensity of the causative event. These variations, however, do affect the TOPEX mission because its trajectory enters regions of space where  $L$  is greater than 2 earth radii. Also, trapped particle populations experience changes due to: (a) local time (LT) dependence, and (b) solar cycle dependence. Both are of some consequence to TOPEX. The former is significant for spacecraft that sample regions where  $L > 5$ , which are visited by TOPEX. To compensate for these variations, the model provides LT-averaged values, which should yield an adequate approximation for missions of long duration ( $\tau > 1$  year). The latter has been taken into account by selecting the appropriate solar cycle models.

Generally, solar cycle variations have opposite effects on each particle species:

	<u>Solar Min</u>	<u>Solar Max</u>
Electron Intensities	lower	higher
Proton Intensities	higher	lower

---

<sup>\*</sup> $Q$  denotes the degree of confidence one wishes to assign to the results; namely that for the specified mission duration the calculated fluences are the smallest values which will not be exceeded by actually encountered intensities.

The solar cycle changes, as derived from a comparison of the corresponding models, are functions of energy E and magnetic parameter L. For the inner zone electrons, they may range from a factor of 1 to a factor of 5.

Protons are only affected in the vicinity of the atmospheric cutoff regions. No changes of consequence have been observed in the heart of the proton trapping domain. Proton changes have about the same range as those of the electrons.

It is necessary to emphasize that the calculations, although based on the best data available for the past epochs, can only serve as approximations for the future.

It also should be noted that a basic uncertainty factor of 2 is defined for the flux values of the AP8, while the AE6 is characterized by a weighted average uncertainty factor of 5 (minimum 2, maximum 10). No uncertainty factor has been defined for the interim AEI7.

#### 9. DOSE AND SHIELDING EVALUATION

Doses were calculated from the total orbit integrated, surface incident, omnidirectional, integral fluences by existing shielding codes<sup>12</sup>, as functions of various aluminum shield thicknesses and geometries.

A simple procedure was followed, not involving solid angle sectoring or three-dimensional ray tracing considerations. Instead, a simple two-dimensional geometry with  $2\pi$  steradian omnidirectional incidence and a cosine law for the incident spectra, and a three-dimensional spherical geometry with omnidirectional incidence were considered. (See comment in section 12D).

Bremsstrahlung calculations were performed with the same codes.

#### 10. COSMIC RAYS

The interplanetary galactic cosmic ray background was attenuated by the degree of geomagnetic shielding experienced by TOPEX along its trajectory through the magnetosphere.

The exposure of TOPEX to the magnetospherically attenuated cosmic rays and the interaction of the heavy ions with the spacecraft materials, in terms of equivalent aluminum thicknesses, were then evaluated for simple structural configurations; that is, a three-dimensional spherical geometry with omnidirectional incidence was considered. The shielded cosmic ray fluxes emerging behind the selected material thicknesses were calculated with state-of-the-art transport codes<sup>13</sup>.

#### 11. RESULTS: PRESENTATION DESCRIPTION

This section describes the form and format in which the results, derived from the Orbital Flux Integration (OFI) process, are presented for practical use. Except where otherwise specified, all particle data in this report relate to

integral, omnidirectional fluxes or fluences.

#### A. Tabular Presentations

The outcome of all calculations is summarized in Tables 1 to 36. The tables are arranged in seven sets, where every set pertains to one specific type of data. The first set has two similar members: one for trapped protons and one for electrons, in that order. The next three sets contain only one member. The fifth set contains three similar members. The sixth set contains one member. The seventh set contains twenty-seven similar members: one for each ion species considered in the study. A more detailed description of the tables is provided in the following paragraphs.

##### I. Spectral Profiles: Tables 1-2

Tabulation of average orbit-integrated spectral distributions. Composite spectra are given in units of: fluxes per square centimeter per second, fluxes per square centimeter per day, and total fluences per specified mission duration (3 years). For the electrons, the latter is also given in terms of inner and outer zone contributions. Functionally derived differential fluxes are listed in the last columns for both species of particles.

Total orbit-integrated spectra in percent, for energy intervals  $\Delta E$  corresponding to selected energy levels are also given in terms of average instantaneous and daily intensities.

An exposure index (for energies  $E_p > 5$  MeV for protons and  $E_e > .5$  MeV for electrons) is listed for nine successive intensity ranges varying by one order of magnitude, in terms of processed exposure duration (in hours) and total number of particles accumulated while in that intensity range for the indicated number of hours.

##### II. Peaks and Totals Per Orbit: Table 3

These tables contain the absolute instantaneous peak fluxes and the total fluences accumulated during each successive revolution, as obtained from the nominal trajectory for the investigated flight duration (24 hours of mission time).

Specifically, there are nine columns on these tables. Column 1 is an orbit counting device, based on:

- a) the orbit period when the trajectory is circular and lies in the equatorial plane;
- b) the physical perigee in all elliptical flight-path cases; and,
- c) the equatorial crossing for circular inclined trajectories.

Column 2 gives the peak flux. Columns 3, 4 and 5 indicate the spacecraft position in geocentric coordinates at which the predicted peak flux was encountered. Columns 6, 7 and 8 determine respectively the relative orbit time and the magnetic B-L coordinates for this

event. For the purpose of orbital radiation studies, all simulated trajectories start at  $t_0$  = hours. Finally, the last column indicates the total predicted flux to be encountered during that particular orbit. It is advisable to disregard the last line on this table because many times that orbit is incomplete and the fluxes or positions shown do not correspond to true peaks.

### III. Time-Accounting and Exposure-Analysis: Table 4

The "EXPOSURE-ANALYSIS" summary indicates what percent of its total lifetime  $T$  the satellite spends in "flux-free" regions of space, what percent of its total lifetime it spends in high intensity proton and electron domains, and while so exposed, what percent of its total flux it accumulates.

In the context of this study, the term "flux-free" applies to all regions of space where trapped particle fluxes are less than one proton or electron per square centimeter per second, having energies  $E_p > 5$  MeV, and  $E_e > .5$  MeV, respectively. By definition, this includes all regions external to the Van Allen radiation belts.

The concept of "trapped particle fluxes" is meant to include stably trapped, pseudo trapped, and transient fluxes, as long as they are part of or contained in the environment models used and, in the case of transients or pseudos, their sources are considered powerful enough to supply them continuously in substantial numbers.

Similarly, as "high intensity" are defined those regions of space where the instantaneous, integral, omnidirectional, trapped-particle flux is greater than  $10^3$  protons with energies  $E_p > 5$ . MeV, and greater than  $10^5$  electrons with energies  $E_e > .5$  MeV.

The values given in these tables are statistical averages, obtained over extended intervals of mission time. However, they may vary significantly from one orbit to the next, when individual revolutions are considered.

The "TIME-ACCOUNT" breakdown shows what percent of its total time the satellite spends in the "inner zone" ( $1.0 \leq L < 2.8$ ) and in the "outer zone" ( $2.8 \leq L \leq 11.0$ ) electron trapping domains, and also the percent of time spent in regions external to the latter ( $L > 11.0$ ).

It should be noted that the confinement of the outer zone within the boundary of the  $L=11.0$  earth radii volume is arbitrary and has no physical meaning. It is intended only as a simplification to facilitate the calculations. The region considered "external" in this study ( $L > 11.0$ ) is still partially a domain of the outer zone, at least as far out as  $L=12.0$  earth radii, according to the current environment models.

A last item on this table: the inner zone time is further subdivided into two parts: the percentage of time spent outside ( $L < 1.1$ ) and inside ( $1.1 \leq L < 2.8$ ) the trapping domain.

#### IV. Solar Flare Proton Fluences and Exposure Factor: Table 5

For the specified mission duration  $\tau$  (printed in the sub-title), and dipole cut-off shell ( $L=5$  earth radii, shown in the header), this table lists the solar proton fluence-spectra (in units of particles per square centimeter) at five discrete confidence levels  $Q$  (given at the top of each column).

The exposure factors (in percent of total mission duration) obtained from the geomagnetic shielding analysis are also listed for four dipole cut-off shell values (in earth radii).

Caution: the AL-event solar flare protons are not contributed gradually over the investigated mission duration ( $\tau = 3$  years) but are imparted in toto in a relatively short burst, that is, within approximately 2-4 days per AL event.

#### V. Total Dose and Components: Tables 6-8

These tables list doses in units of rads as a function of aluminum shield thickness, given in three ways: range  $s$  in grams per square centimeter, depth  $\underline{s}$  in millimeters, and depth  $\underline{t}$  in mils.

Electron, bremsstrahlung, and proton contributions to the overall sumtotal dose are given separately. Electron and proton doses are further broken down into their respective constituents; namely, inner zone and outer zone (if applicable) for the former, trapped and solar flare (if applicable) for the latter.

The specific mission duration for which the doses have been calculated is indicated in the table headline.

#### VI. Spacecraft Exposure to Heavy Ions: Table 9

For the specified total exposure time (printed in the subtitle) and for the indicated L-Bins (listed in columns 1 and 2), this table gives the rigidity in column 3 (in units of GV), the ion cut-off energy in column 4 (in units of MeV/nucleon), and the corresponding spacecraft exposure profile and accessibility profile in columns 5, 6, 7 and 8. The exposure profile is evaluated in terms of actual time spent in each L-Bin (column 5, in units of hours) and, normalized by the total exposure time, in terms of percent exposure (column 6). The accessibility profile is given for an inverse summation of the actual time spent in the L-Bins (column 7, in units of hours) and, normalized by the total exposure time, in percent (column 8).

#### VII. Cosmic Ray Spectra: Tables 10-36

Tabulation of average orbit-integrated spectral distribution. One table is printed for each ion species considered in the study. The ion identification is given in the title. Ion energy is listed in column 1 in units of MeV/nucleon. Column 2 gives the unattenuated, interplanetary differential cosmic ray flux for the given ion. Column 3 gives the magnetospherically attenuated differential flux.

Columns 4 through 15 give the results of passing the attenuated cosmic ray flux through spherical aluminum shields of various radii, where column 4 contains the emerging energy (in units of MeV/nucleon) and columns 5 through 15 contain the emerging fluxes for these energies for 11 shield thicknesses (in gm/cm<sup>2</sup>) which are indicated in the column heading. These shielded spectra are continued on the next page. All intensities are differential fluxes in units of particles/cm<sup>2</sup>·day·MeV/nucleon.

### B. Graphical Presentation

Some of the tabulated data are also plotted in Figures 1 to 4, and 7 to 15 with additional Figures 5 and 6 containing plots of flight path data. Positional flux and dose data are plotted in Figures 16-26. Cosmic ray data are plotted in Figures 27-55. As with the tables, the computer plots are arranged in ten sets, where again each set pertains to one specific type of data. The first set has two similar members: one for each particle species. The next three sets (second, third and fourth) contain one member. The fifth set contains nine similar members, providing three graphs (for respective depth ranges) for each of three geometries. The sixth set contains two similar members for each trajectory: one for each particle specie. The seventh set has nine members, providing proton, electron, and total dose graphs for each of three geometries. The eighth and ninth sets contain one member. Finally the tenth set contains 27 members: one for each ion specie considered in this study.

#### I. Spectral Profiles: Figures 1-2

A graphical presentation of the final composite spectral distribution, obtained from the orbital integration process. The plots are semi-log graphs, where the abscissa is a linear energy scale for integral particle energies E, in MeV, and the ordinate is a logarithmic scale for the fluxes, given in daily averages for energies greater than E; the printed scale values are powers of 10.

#### II. Peaks Per Orbit: Figures 3-4

Here the absolute peak intensities, encountered per period (1 period = 1 revolution = 1 orbit), are plotted for the duration of the flight-time processed in the analysis. The logarithmic ordinate, with scale values in powers of 10, relates to instantaneous particle fluxes of the environment at the indicated energy thresholds, while the abscissa is a linear orbit enumeration.

#### III. Trajectory World Map Projections: Figure 5

This graph depicts the surface trace of the geocentrically projected subsatellite positions. The trajectory is plotted for several revolutions on a global map produced by a Miller Cylindrical Projection method. The contours of the continents have been omitted for clarity. The positions of equatorial crossing, of physical perigee, or of period commencement are indicated by numbers identifying the orbits shown in the graphs. For this trajectory, the distance between successive sequential numbers is a measure of the orbit precession. The highlighted portion of the flight path

represents the "worst-case" pass through the South Atlantic Anomaly (SAA) selected for instantaneous Positional Flux and Dose calculations (see subsequent sections 11.B.VI and 11.B.VII).

IV. Flight Path Tracing in B-L Space: Figure 6

Plot showing trajectory traces in B-L space on a semi-log scale. Several orbits are depicted, each identified by its sequential number. The magnetic equator is entered on the plot. The logarithmic ordinate relates to the field strength B in gauss; the printed values are exponents of 10. L is given in earth radii on the linear abscissa.

V. Dose-Depth Curves by Geometry: Figures 7-15

Plots of final depth-dose values for the indicated mission duration. These plots show contours of inner and outer zone electrons, trapped and solar flare protons, bremsstrahlung, and the sumtotal of all contributions.

For ease of use and in order to provide a greater resolution at the more sensitive range of depths (namely the thinner shields) three plots have been generated for each of the three geometries considered, for shield-ranges and subdivisions increasing by one order of magnitude.

The logarithmic ordinate, with scale values in powers of 10, relates aluminum dose in units of rads. The linear abscissa is the shield thickness, given in three different units: range s in grams per square centimeter, depth t in millimeters, depth t in mils.

VI. Positional Flux Plots: Figures 16-17

Plots of instantaneous omnidirectional trapped particle fluxes (electrons and protons) at (up to 10) specified threshold energy levels (>MeV), for a selected orbit (usually worst case revolution through heart of SAA).

The logarithmic ordinate, with scale values in powers of 10, relates to the number of particles per square centimeter per second. The linear abscissa is the relative time, in minutes or hours, from the beginning of the selected orbital pass.

VII. Positional Dose Plots by Geometry: Figures 18-26

Plots of instantaneous omnidirectional trapped particle dose values 10) specified shield thicknesses (omnidirectional isotropic incidence, cosine-theta distribution) for a selected orbit (usually worst case revolution through heart of SAA). Separate plots are generated (if present) for: electron dose (including bremsstrahlung), proton dose, and total dose (no solar proton contributions are included) for dose at transmission surface of aluminum slab shields, dose in semi-infinite aluminum medium, and dose at center of aluminum spheres.

The logarithmic ordinate, with scale values in powers of 10, relates to the respective dose in units of rads-aluminum. The linear abscissa is the relative time, in minutes or hours, from the beginning of the selected orbital pass.

#### VIII. Cosmic Ray Exposure Profile: Figure 27

This graph shows the relative exposure time to cosmic rays, plotted as a function of mean L-Bin values. The ordinate relates to the actual time spent in each L-Bin normalized by total exposure time and given in percent. The abscissa relates to the mean L-Bin values in units of L.

#### IX. Accessibility Profile: Figure 28

This graph shows the normalized L-Bin summation plotted versus energy. The ordinate relates to the L-Bin summation values given in percent of the total exposure time for the orbit. The abscissa relates to the ion cut-off energy in units of MeV/nucleon.

#### X. Cosmic Ray Spectra: Figures 29-55

For each cosmic ray ion specie, a plot of the differential cosmic ray flux data is given. Each plot shows the unattenuated, interplanetary cosmic ray flux, the magnetospherically attenuated flux for the TOPEX spacecraft, and the shielded attenuated cosmic ray fluxes for various spherical aluminum shields of indicated thicknesses.

The logarithmic ordinate, with scale values given in powers of 10, relates to the number of particles per square centimeter per day per MeV/nucleon. The linear abscissa is the ion energy in MeV/nucleon.

### 12. RESULTS: ANALYSIS AND DISCUSSION

In this section, some of the presented tabular or graphical study-results are discussed, with occasional comments as to their use, limits, and applications.

#### A. Spectral Profiles

Characteristic features of the near earth radiation environment are strong altitude and inclination dependencies. However, as only one inclination and one altitude was considered in this study, the data do not reflect the important effect of these variables. It should be noted that at high inclination values ( $60^\circ < i < 90^\circ$ ) small changes in either direction, up or down, will not produce significant changes in flux levels and spectral distributions. The greatest inclination dependent variations occur in the range  $0^\circ < i < 35^\circ$ .

##### I. Protons:

In the altitude domain of TOPEX, average orbit integrated intensities rise significantly with increasing height. For the investigated trajectory the protons exhibit a relatively hard spectrum. Over the energy range from  $E > 30$  MeV to  $E > 500$  MeV, the proton distribution

is shown as a nearly straight line in the log-linear plot of Figure 1. It should be noted, however, that the spectrum will not continue in this manner to much higher energies because the conditions for stable trapping break down. Therefore, it is not advisable to extrapolate the spectral curves to still higher energies.

## II. Electrons:

The electrons show a complex spectrum. Inner zone and outer zone average, orbit-integrated, composite intensities rise non-uniformly with altitude, particularly at energies above 2 MeV with differences reaching up to several orders of magnitude at  $E_e > 5$  MeV. Spectra also extend to higher energies as height increases.

These composite electron distributions cannot be represented by either exponential or power law forms. The inner zone spectra fall rapidly off to zero flux in the energy range from 4 to 5 MeV and they are therefore more benign than their harder out-zone counterparts, which extend to energies of about 7 MeV.

### B. Peaks and Totals Per Orbit

The absolute peaks per revolution have been obtained for standard processing energies:  $E_p > 5$  MeV for protons and  $E_e > .5$  MeV for electrons. Other energy selections produce different peak curves in an inverse relationship: lower energies yield higher intensities and more expanded contours, and vice versa.

Peak value contours of inclined circular trajectories display amplitude variations and sometimes discontinuities (flux-free time) that follow periodic patterns based on the daily cycle of revolutions. For fixed energies, peak magnitudes and discontinuities are functions of: (a) inclination  $i$ , and (b) altitude  $h$ .

Variations in either  $i$  or  $h$  may produce significant changes in the amplitude of the peak curves and in the duration of the discontinuities: up to several orders of magnitude for the former, and completely eliminating the latter.

### C. Flux-Free Time

Some comments on this topic have been provided in the previous section and in section 11/A/III. Here a more detailed discussion will be given.

Flux-free time (FFT) intervals are an important feature of certain orbital configurations. They may occur over short orbit segments (partial FFT per period) or over the entire length of a revolution (total FFT per period). In terms of geomagnetic geometry, the FFTs establish the duration for which the trajectory lies outside the trapping domain of the corresponding particle species, evaluated at the given energies. Or conversely, they are a measure of the degree to which the trajectory is exposed to the charged particle trapping domains.

One manifestation of extended FFT occurrence is the sharp drop-off of the proton peak contours to almost the zero-flux level. For some trajectory configurations, this may happen for several orbits in the investigated study-duration of 24 hours. That is, for the entire length of the respective revolutions, no Van Allen belt radiation at all is to be encountered by the satellite, according to model predictions.

The number of consecutive flux-free orbits of circular trajectories is primarily a function of altitude and inclination and to a lesser degree a function of particle energy. For the TOPEX mission, the total FFT in percent of total mission duration, which includes the contributions from partially exposed revolutions (see "Exposure Analysis," Table #5), can be summarized as follows:

	<u>Protons</u> (E > 5 MeV)	<u>Electrons</u> (E > .5 MeV)
Solar Maximum	46%	15%

Generally, higher energies will yield longer FFT's because the more energetic particles occupy a smaller volume of space.

#### D. Dose and Shielding

At medium-to-high shield thicknesses, the calculated doses display features characteristic of the near earth radiation environment: small contributions from relatively benign and low intensity electron spectra combined with major contributions from comparatively harder proton spectra.

The trapped proton-dose dominance prevails for all shield thicknesses greater than about 120 mils of aluminum for the spherical geometry.

Significant is the fact that, for aluminum, the proton dose is only a weak function of shield thickness, as it shows very little attenuation over a large depth range. Thus, in order to get an appreciable reduction in the dose, say by a factor of 2, a nearly 7-fold increase in shield thickness is necessary. The same is true for the bremsstrahlung dose.

#### I. Decay and Degradation

The total doses obtained for the 3 year mission duration are severe. In terms of electronics damage or materials degradation, the doses to be experienced inside the satellite, that is, behind an overall (hypothetical) spherical aluminum shield thickness of about 150 mils, are approximately 32 krads, which may be catastrophic for sensitive components or equipment. Electronic parts and circuits that are not radiation hardened, may suffer serious damage. This can result in failures very early in the mission. Parts screening and testing is advisable. Selection of less sensitive parts or substantial shielding may be necessary.

#### II. Contamination and Interference

It should be remembered, that the direct or indirect effects of the

radiation environment may also be a nuisance in terms of instrument interference or measurement contamination. If such is the case, some remedies may be available (see next section).

### III. Possible Improvements

In conclusion, in the event that the magnitude of total dose or the degree of radiation penetration behind the skin of the satellite is of importance to the mission, four possibilities exist to reduce the radiation effects on instruments and components:

- a) build or design an instrument less sensitive to radiation and construct the on-board and/or on-ground data processing software to remove or suppress radiation-induced noise,
- b) select radiation resistant parts,
- c) change the orbit by any combination of the elements eccentricity, altitude, and inclination so as to achieve a more benign environment,
- d) change the mission epoch: solar max for reduced proton intensities, solar min for reduced electron intensities,
- e) provide increased shielding either by geometry or by weight by a combination of both;

by geometry: perform a 3-D analysis (solid angle sectoring) and rearrange other equipment on board the satellite in order to provide maximum protection to sensitive part over greatest possible fraction of solid angle.\*

by weight: place additional shields around sensitive part as needed (spot shielding).

Clearly options (a) and (d) are good choices because they can be addressed during the early spacecraft design stages.

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\* Complex radiation shielding and transport calculations can now be performed at GSFC. It is now possible to address such topics as: (a) material mixtures, cross sections for protons, electrons, heavy charge particles, and neutrons, including source spectra and response functions; (b) source geometry, detector geometry, surfaces, rays, bodies, regions, body intersections, body unions, simple meshes, design bodies, spacecraft rays, with diverse features such as combinatorial options, translate-rotate-replicate capabilities, etc.; (c) heavy charged particle applications-1D transport by numerical integration, small volume pulse height (soft errors), 3D ray trace sectoring, 3D adjoint Monte Carlo; (d) electron bremsstrahlung-1D transport by numerical integration and by adjoint Monte Carlo, small volume pulse height, 3D ray trace sectoring, 3D forward and adjoint Monte Carlo, energy deposition, charging distributions. (For information and cost estimates contact: E. G. Stassinopoulos, NASA-GSFC-NSSDC, Code 601, Greenbelt, Maryland 20771, telephone 301-344-8067).

## E. Galactic Cosmic Rays

For the elements from He to Ni, the plots show the unattenuated interplanetary cosmic ray spectra, the magnetospherically attenuated orbit-integrated spectra (incident on the surface of the spacecraft), and, derived from this latter, the shielded spectra of emerging particles behind selected thicknesses of spherical Aluminum geometries. Although not scientifically correct, the cosmic ray incidence may be assumed omnidirectional, for practical application purposes. The error introduced by this simplification lies, for most cases, well within the large intrinsic uncertainties associated with these types of estimates and calculations.

The most important (but predictable and expected) features of the data in Figures 29-55, are:

1. the substantial attenuation by the earth's magnetic field of all particles in the investigated energy domain (10-3000 MeV/n);
2. the insignificant effect of material shielding in the energy range from about 90 to 3000 MeV/n: no substantial decrease in fluxes even for 10 gm/cm<sup>2</sup> Al (approximately 1.5 inches);
3. the unavoidable shielding side-effect of a significant increase in the low energy (.2-50 MeV/n) fluxes for shield thicknesses > .1 gm/cm<sup>2</sup> Al.

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**ORIGINAL PAGE IS  
OF POOR QUALITY.**

## **SPECTRUM IN PERCENT DELTA ENERGY $\pm$ 5%**

\*\*\*\*\* CCPFC SITE CRBIT SPECTRUM \*\*\*\*\* TAU= 2.0000 YEAR (S)

LEVELS	AVERAGE ENERGY A/C #492/SEC	AVERAGE INTEGRAL FLUX A/C #492/SEC	AVERAGE INTEGRAL FLUX A/C #492/CAV	AVERAGE INTEGRAL FLUX A/C #492/TAU	AVERAGE INTEGRAL FLUX A/C #492/SICN
-0.499E-011	5.26E-05	1.17E-02	1.17E-02	1.17E-02	1.17E-02
-0.498E-011	1.00E-05	2.32E-02	2.32E-02	2.32E-02	2.32E-02
-0.497E-011	1.40E-04	3.63E-02	3.63E-02	3.63E-02	3.63E-02
-0.496E-011	1.80E-04	5.00E-02	5.00E-02	5.00E-02	5.00E-02
-0.495E-011	2.20E-04	6.43E-02	6.43E-02	6.43E-02	6.43E-02
-0.494E-011	2.60E-04	7.85E-02	7.85E-02	7.85E-02	7.85E-02
-0.493E-011	3.00E-04	9.26E-02	9.26E-02	9.26E-02	9.26E-02
-0.492E-011	3.40E-04	1.067E-01	1.067E-01	1.067E-01	1.067E-01
-0.491E-011	3.80E-04	1.208E-01	1.208E-01	1.208E-01	1.208E-01
-0.490E-011	4.20E-04	1.349E-01	1.349E-01	1.349E-01	1.349E-01
-0.489E-011	4.60E-04	1.490E-01	1.490E-01	1.490E-01	1.490E-01
-0.488E-011	5.00E-04	1.631E-01	1.631E-01	1.631E-01	1.631E-01
-0.487E-011	5.40E-04	1.772E-01	1.772E-01	1.772E-01	1.772E-01
-0.486E-011	5.80E-04	1.913E-01	1.913E-01	1.913E-01	1.913E-01
-0.485E-011	6.20E-04	2.054E-01	2.054E-01	2.054E-01	2.054E-01
-0.484E-011	6.60E-04	2.195E-01	2.195E-01	2.195E-01	2.195E-01
-0.483E-011	7.00E-04	2.336E-01	2.336E-01	2.336E-01	2.336E-01
-0.482E-011	7.40E-04	2.477E-01	2.477E-01	2.477E-01	2.477E-01
-0.481E-011	7.80E-04	2.618E-01	2.618E-01	2.618E-01	2.618E-01
-0.480E-011	8.20E-04	2.759E-01	2.759E-01	2.759E-01	2.759E-01
-0.479E-011	8.60E-04	2.900E-01	2.900E-01	2.900E-01	2.900E-01
-0.478E-011	9.00E-04	3.041E-01	3.041E-01	3.041E-01	3.041E-01
-0.477E-011	9.40E-04	3.182E-01	3.182E-01	3.182E-01	3.182E-01
-0.476E-011	9.80E-04	3.323E-01	3.323E-01	3.323E-01	3.323E-01
-0.475E-011	1.02E-03	3.464E-01	3.464E-01	3.464E-01	3.464E-01
-0.474E-011	1.06E-03	3.605E-01	3.605E-01	3.605E-01	3.605E-01
-0.473E-011	1.10E-03	3.746E-01	3.746E-01	3.746E-01	3.746E-01
-0.472E-011	1.14E-03	3.887E-01	3.887E-01	3.887E-01	3.887E-01
-0.471E-011	1.18E-03	4.028E-01	4.028E-01	4.028E-01	4.028E-01
-0.470E-011	1.22E-03	4.169E-01	4.169E-01	4.169E-01	4.169E-01
-0.469E-011	1.26E-03	4.310E-01	4.310E-01	4.310E-01	4.310E-01
-0.468E-011	1.30E-03	4.451E-01	4.451E-01	4.451E-01	4.451E-01
-0.467E-011	1.34E-03	4.592E-01	4.592E-01	4.592E-01	4.592E-01
-0.466E-011	1.38E-03	4.733E-01	4.733E-01	4.733E-01	4.733E-01
-0.465E-011	1.42E-03	4.874E-01	4.874E-01	4.874E-01	4.874E-01
-0.464E-011	1.46E-03	5.015E-01	5.015E-01	5.015E-01	5.015E-01
-0.463E-011	1.50E-03	5.156E-01	5.156E-01	5.156E-01	5.156E-01
-0.462E-011	1.54E-03	5.297E-01	5.297E-01	5.297E-01	5.297E-01
-0.461E-011	1.58E-03	5.438E-01	5.438E-01	5.438E-01	5.438E-01
-0.460E-011	1.62E-03	5.579E-01	5.579E-01	5.579E-01	5.579E-01
-0.459E-011	1.66E-03	5.720E-01	5.720E-01	5.720E-01	5.720E-01
-0.458E-011	1.70E-03	5.861E-01	5.861E-01	5.861E-01	5.861E-01
-0.457E-011	1.74E-03	6.002E-01	6.002E-01	6.002E-01	6.002E-01
-0.456E-011	1.78E-03	6.143E-01	6.143E-01	6.143E-01	6.143E-01
-0.455E-011	1.82E-03	6.284E-01	6.284E-01	6.284E-01	6.284E-01
-0.454E-011	1.86E-03	6.425E-01	6.425E-01	6.425E-01	6.425E-01
-0.453E-011	1.90E-03	6.566E-01	6.566E-01	6.566E-01	6.566E-01
-0.452E-011	1.94E-03	6.707E-01	6.707E-01	6.707E-01	6.707E-01
-0.451E-011	1.98E-03	6.848E-01	6.848E-01	6.848E-01	6.848E-01
-0.450E-011	2.02E-03	6.989E-01	6.989E-01	6.989E-01	6.989E-01
-0.449E-011	2.06E-03	7.130E-01	7.130E-01	7.130E-01	7.130E-01
-0.448E-011	2.10E-03	7.271E-01	7.271E-01	7.271E-01	7.271E-01
-0.447E-011	2.14E-03	7.412E-01	7.412E-01	7.412E-01	7.412E-01
-0.446E-011	2.18E-03	7.553E-01	7.553E-01	7.553E-01	7.553E-01
-0.445E-011	2.22E-03	7.694E-01	7.694E-01	7.694E-01	7.694E-01
-0.444E-011	2.26E-03	7.835E-01	7.835E-01	7.835E-01	7.835E-01
-0.443E-011	2.30E-03	7.976E-01	7.976E-01	7.976E-01	7.976E-01
-0.442E-011	2.34E-03	8.117E-01	8.117E-01	8.117E-01	8.117E-01
-0.441E-011	2.38E-03	8.258E-01	8.258E-01	8.258E-01	8.258E-01
-0.440E-011	2.42E-03	8.400E-01	8.400E-01	8.400E-01	8.400E-01
-0.439E-011	2.46E-03	8.541E-01	8.541E-01	8.541E-01	8.541E-01
-0.438E-011	2.50E-03	8.682E-01	8.682E-01	8.682E-01	8.682E-01
-0.437E-011	2.54E-03	8.823E-01	8.823E-01	8.823E-01	8.823E-01
-0.436E-011	2.58E-03	8.964E-01	8.964E-01	8.964E-01	8.964E-01
-0.435E-011	2.62E-03	9.105E-01	9.105E-01	9.105E-01	9.105E-01
-0.434E-011	2.66E-03	9.246E-01	9.246E-01	9.246E-01	9.246E-01
-0.433E-011	2.70E-03	9.387E-01	9.387E-01	9.387E-01	9.387E-01
-0.432E-011	2.74E-03	9.528E-01	9.528E-01	9.528E-01	9.528E-01
-0.431E-011	2.78E-03	9.669E-01	9.669E-01	9.669E-01	9.669E-01
-0.430E-011	2.82E-03	9.810E-01	9.810E-01	9.810E-01	9.810E-01
-0.429E-011	2.86E-03	9.951E-01	9.951E-01	9.951E-01	9.951E-01
-0.428E-011	2.90E-03	1.009E-00	1.009E-00	1.009E-00	1.009E-00
-0.427E-011	2.94E-03	1.023E-00	1.023E-00	1.023E-00	1.023E-00
-0.426E-011	2.98E-03	1.037E-00	1.037E-00	1.037E-00	1.037E-00
-0.425E-011	3.02E-03	1.051E-00	1.051E-00	1.051E-00	1.051E-00
-0.424E-011	3.06E-03	1.065E-00	1.065E-00	1.065E-00	1.065E-00
-0.423E-011	3.10E-03	1.079E-00	1.079E-00	1.079E-00	1.079E-00
-0.422E-011	3.14E-03	1.093E-00	1.093E-00	1.093E-00	1.093E-00
-0.421E-011	3.18E-03	1.107E-00	1.107E-00	1.107E-00	1.107E-00
-0.420E-011	3.22E-03	1.121E-00	1.121E-00	1.121E-00	1.121E-00
-0.419E-011	3.26E-03	1.135E-00	1.135E-00	1.135E-00	1.135E-00
-0.418E-011	3.30E-03	1.149E-00	1.149E-00	1.149E-00	1.149E-00
-0.417E-011	3.34E-03	1.163E-00	1.163E-00	1.163E-00	1.163E-00
-0.416E-011	3.38E-03	1.177E-00	1.177E-00	1.177E-00	1.177E-00
-0.415E-011	3.42E-03	1.191E-00	1.191E-00	1.191E-00	1.191E-00
-0.414E-011	3.46E-03	1.205E-00	1.205E-00	1.205E-00	1.205E-00
-0.413E-011	3.50E-03	1.219E-00	1.219E-00	1.219E-00	1.219E-00
-0.412E-011	3.54E-03	1.233E-00	1.233E-00	1.233E-00	1.233E-00
-0.411E-011	3.58E-03	1.247E-00	1.247E-00	1.247E-00	1.247E-00
-0.410E-011	3.62E-03	1.261E-00	1.261E-00	1.261E-00	1.261E-00
-0.409E-011	3.66E-03	1.275E-00	1.275E-00	1.275E-00	1.275E-00
-0.408E-011	3.70E-03	1.289E-00	1.289E-00	1.289E-00	1.289E-00
-0.407E-011	3.74E-03	1.303E-00	1.303E-00	1.303E-00	1.303E-00
-0.406E-011	3.78E-03	1.317E-00	1.317E-00	1.317E-00	1.317E-00
-0.405E-011	3.82E-03	1.331E-00	1.331E-00	1.331E-00	1.331E-00
-0.404E-011	3.86E-03	1.345E-00	1.345E-00	1.345E-00	1.345E-00
-0.403E-011	3.90E-03	1.359E-00	1.359E-00	1.359E-00	1.359E-00
-0.402E-011	3.94E-03	1.373E-00	1.373E-00	1.373E-00	1.373E-00
-0.401E-011	3.98E-03	1.387E-00	1.387E-00	1.387E-00	1.387E-00
-0.400E-011	4.02E-03	1.401E-00	1.401E-00	1.401E-00	1.401E-00
-0.399E-011	4.06E-03	1.415E-00	1.415E-00	1.415E-00	1.415E-00
-0.398E-011	4.10E-03	1.429E-00	1.429E-00	1.429E-00	1.429E-00
-0.397E-011	4.14E-03	1.443E-00	1.443E-00	1.443E-00	1.443E-00
-0.396E-011	4.18E-03	1.457E-00	1.457E-00	1.457E-00	1.457E-00
-0.395E-011	4.22E-03	1.471E-00	1.471E-00	1.471E-00	1.471E-00
-0.394E-011	4.26E-03	1.485E-00	1.485E-00	1.485E-00	1.485E-00
-0.393E-011	4.30E-03	1.500E-00	1.500E-00	1.500E-00	1.500E-00
-0.392E-011	4.34E-03	1.514E-00	1.514E-00	1.514E-00	1.514E-00
-0.391E-011	4.38E-03	1.528E-00	1.528E-00	1.528E-00	1.528E-00
-0.390E-011	4.42E-03	1.542E-00	1.542E-00	1.542E-00	1.542E-00
-0.389E-011	4.46E-03	1.556E-00	1.556E-00	1.556E-00	1.556E-00
-0.388E-011	4.50E-03	1.570E-00	1.570E-00	1.570E-00	1.570E-00
-0.387E-011	4.54E-03	1.584E-00	1.584E-00	1.584E-00	1.584E-00
-0.386E-011	4.58E-03	1.598E-00	1.598E-00	1.598E-00	1.598E-00
-0.385E-011	4.62E-03	1.612E-00	1.612E-00	1.612E-00	1.612E-00
-0.384E-011	4.66E-03	1.626E-00	1.626E-00	1.626E-00	1.626E-00
-0.383E-011	4.70E-03	1.640E-00	1.640E-00	1.640E-00	1.640E-00
-0.382E-011	4.74E-03	1.654E-00	1.654E-00	1.654E-00	1.654E-00
-0.381E-011	4.78E-03	1.668E-00	1.668E-00	1.668E-00	1.668E-00
-0.380E-011	4.82E-03	1.682E-00	1.682E-00	1.682E-00	1.682E-00
-0.379E-011	4.86E-03	1.696E-00	1.696E-00	1.696E-00	1.696E-00
-0.378E-011	4.90E-03	1.710E-00	1.710E-00	1.710E-00	1.710E-00
-0.377E-011	4.94E-03	1.724E-00	1.724E-00	1.724E-00	1.724E-00
-0.376E-011	4.98E-03	1.738E-00	1.738E-00	1.738E-00	1.738E-00
-0.375E-011	5.02E-03	1.752E-00	1.752E-00	1.752E-00	1.752E-00
-0.374E-011	5.06E-03	1.766E-00	1.766E-00	1.766E-00	1.766E-00
-0.373E-011	5.10E-03	1.780E-00	1.780E-00	1.780E-00	1.780E-00
-0.372E-011	5.14E-03	1.794E-00	1.794E-00	1.794E-00	1.794E-00
-0.371E-011	5.18E-03	1.808E-00	1.808E-00	1.808E-00	1.808E-00
-0.370E-011	5.22E-03	1.822E-00	1.822E-00	1.822E-00	1.822E-00
-0.369E-011	5.26E-03	1.836E-00	1.836E-00	1.836E-00	1.836E-00
-0.368E-011	5.30E-03	1.850E-00	1.850E-00	1.850E-00	1.850E-00
-0.367E-011	5.34E-03	1.864E-00	1.864E-00	1.864E-00	1.864E-00
-0.366E-011	5.38E-03	1.878E-00	1.878E-00	1.878E-00	1.878E-00
-0.365E-011	5.42E-03	1.892E-00	1.892E-00	1.892E-00	1.892E-00
-0.364E-011	5.46E-03	1.906E-00			

TABLE 1

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ORBITAL FLUX STUDY WITH COMPOSITE PARTICLE ENVIRONMENTS  
VELOCITY: AEG = AEI FOR SCLAR MAXIMUM - 90°  
ACCELERATION FACTORS (APB) = UF = 1.0  
PARTICLE INTEGRAL INNER ZONE ELECTRONS - UF = 1.0  
MAGNETIC COORDINATES E AND L COMPUTED BY JAHARA OF 1572 NM TILL CALLING MODEL - 1.344E-3 V PER SEC  
SOURCE - 3 VERSES OF INGLINA JOHN E. 3-DIE OF APODE ON TAPE TDC7699 PENTOD - 1.581E-2  
VTPR INCORPORATION OR FLPLANATION CONTACT E.G. STASIA CALCULS AT NASA-GSFC CODE 601  
GREENBELT, MARYLAND 20771 TEL (301) 346-6677  
ELECTRICAL EQUIPMENT INC. 10000 N. 10TH ST. PHOENIX, AZ 85004  
ELECTRICALS LLC 10000 N. 10TH ST. PHOENIX, AZ 85004

\*\*\*\*\* SPECTRUM IN PERCENT DELTA ENERGY \*\*\*\*\*

ENERGY PERIOD (keV)	AVERAGED TOTAL FLUX #/CROS 2/SEC	SPECTRUM TOTAL FLUX #/CROS 2/SEC	PERCENT	0.0000-1.5000	1.504E-06	2.046E-11	0.02%	1.5000-1.5000	1.504E-05	9.575E-05	0.02%	1.5000-1.5000	1.504E-04	9.575E-04	0.02%	1.5000-1.5000	1.504E-03	9.575E-03	0.02%	1.5000-1.5000	1.504E-02	9.575E-02	0.02%	1.5000-1.5000	1.504E-01	9.575E-01	0.02%	1.5000-1.5000	1.504E-00	9.575E-00	0.02%	1.5000-1.5000	1.504E-01	9.575E-01	0.02%	1.5000-1.5000	1.504E-02	9.575E-02	0.02%	1.5000-1.5000	1.504E-03	9.575E-03	0.02%	1.5000-1.5000	1.504E-04	9.575E-04	0.02%	1.5000-1.5000	1.504E-05	9.575E-05	0.02%	1.5000-1.5000	1.504E-06	9.575E-06	0.02%	1.5000-1.5000	1.504E-07	9.575E-07	0.02%	1.5000-1.5000	1.504E-08	9.575E-08	0.02%	1.5000-1.5000	1.504E-09	9.575E-09	0.02%	1.5000-1.5000	1.504E-10	9.575E-10	0.02%	1.5000-1.5000	1.504E-11	9.575E-11	0.02%	1.5000-1.5000	1.504E-12	9.575E-12	0.02%	1.5000-1.5000	1.504E-13	9.575E-13	0.02%	1.5000-1.5000	1.504E-14	9.575E-14	0.02%	1.5000-1.5000	1.504E-15	9.575E-15	0.02%	1.5000-1.5000	1.504E-16	9.575E-16	0.02%	1.5000-1.5000	1.504E-17	9.575E-17	0.02%	1.5000-1.5000	1.504E-18	9.575E-18	0.02%	1.5000-1.5000	1.504E-19	9.575E-19	0.02%	1.5000-1.5000	1.504E-20	9.575E-20	0.02%	1.5000-1.5000	1.504E-21	9.575E-21	0.02%	1.5000-1.5000	1.504E-22	9.575E-22	0.02%	1.5000-1.5000	1.504E-23	9.575E-23	0.02%	1.5000-1.5000	1.504E-24	9.575E-24	0.02%	1.5000-1.5000	1.504E-25	9.575E-25	0.02%	1.5000-1.5000	1.504E-26	9.575E-26	0.02%	1.5000-1.5000	1.504E-27	9.575E-27	0.02%	1.5000-1.5000	1.504E-28	9.575E-28	0.02%	1.5000-1.5000	1.504E-29	9.575E-29	0.02%	1.5000-1.5000	1.504E-30	9.575E-30	0.02%	1.5000-1.5000	1.504E-31	9.575E-31	0.02%	1.5000-1.5000	1.504E-32	9.575E-32	0.02%	1.5000-1.5000	1.504E-33	9.575E-33	0.02%	1.5000-1.5000	1.504E-34	9.575E-34	0.02%	1.5000-1.5000	1.504E-35	9.575E-35	0.02%	1.5000-1.5000	1.504E-36	9.575E-36	0.02%	1.5000-1.5000	1.504E-37	9.575E-37	0.02%	1.5000-1.5000	1.504E-38	9.575E-38	0.02%	1.5000-1.5000	1.504E-39	9.575E-39	0.02%	1.5000-1.5000	1.504E-40	9.575E-40	0.02%	1.5000-1.5000	1.504E-41	9.575E-41	0.02%	1.5000-1.5000	1.504E-42	9.575E-42	0.02%	1.5000-1.5000	1.504E-43	9.575E-43	0.02%	1.5000-1.5000	1.504E-44	9.575E-44	0.02%	1.5000-1.5000	1.504E-45	9.575E-45	0.02%	1.5000-1.5000	1.504E-46	9.575E-46	0.02%	1.5000-1.5000	1.504E-47	9.575E-47	0.02%	1.5000-1.5000	1.504E-48	9.575E-48	0.02%	1.5000-1.5000	1.504E-49	9.575E-49	0.02%	1.5000-1.5000	1.504E-50	9.575E-50	0.02%	1.5000-1.5000	1.504E-51	9.575E-51	0.02%	1.5000-1.5000	1.504E-52	9.575E-52	0.02%	1.5000-1.5000	1.504E-53	9.575E-53	0.02%	1.5000-1.5000	1.504E-54	9.575E-54	0.02%	1.5000-1.5000	1.504E-55	9.575E-55	0.02%	1.5000-1.5000	1.504E-56	9.575E-56	0.02%	1.5000-1.5000	1.504E-57	9.575E-57	0.02%	1.5000-1.5000	1.504E-58	9.575E-58	0.02%	1.5000-1.5000	1.504E-59	9.575E-59	0.02%	1.5000-1.5000	1.504E-60	9.575E-60	0.02%	1.5000-1.5000	1.504E-61	9.575E-61	0.02%	1.5000-1.5000	1.504E-62	9.575E-62	0.02%	1.5000-1.5000	1.504E-63	9.575E-63	0.02%	1.5000-1.5000	1.504E-64	9.575E-64	0.02%	1.5000-1.5000	1.504E-65	9.575E-65	0.02%	1.5000-1.5000	1.504E-66	9.575E-66	0.02%	1.5000-1.5000	1.504E-67	9.575E-67	0.02%	1.5000-1.5000	1.504E-68	9.575E-68	0.02%	1.5000-1.5000	1.504E-69	9.575E-69	0.02%	1.5000-1.5000	1.504E-70	9.575E-70	0.02%	1.5000-1.5000	1.504E-71	9.575E-71	0.02%	1.5000-1.5000	1.504E-72	9.575E-72	0.02%	1.5000-1.5000	1.504E-73	9.575E-73	0.02%	1.5000-1.5000	1.504E-74	9.575E-74	0.02%	1.5000-1.5000	1.504E-75	9.575E-75	0.02%	1.5000-1.5000	1.504E-76	9.575E-76	0.02%	1.5000-1.5000	1.504E-77	9.575E-77	0.02%	1.5000-1.5000	1.504E-78	9.575E-78	0.02%	1.5000-1.5000	1.504E-79	9.575E-79	0.02%	1.5000-1.5000	1.504E-80	9.575E-80	0.02%	1.5000-1.5000	1.504E-81	9.575E-81	0.02%	1.5000-1.5000	1.504E-82	9.575E-82	0.02%	1.5000-1.5000	1.504E-83	9.575E-83	0.02%	1.5000-1.5000	1.504E-84	9.575E-84	0.02%	1.5000-1.5000	1.504E-85	9.575E-85	0.02%	1.5000-1.5000	1.504E-86	9.575E-86	0.02%	1.5000-1.5000	1.504E-87	9.575E-87	0.02%	1.5000-1.5000	1.504E-88	9.575E-88	0.02%	1.5000-1.5000	1.504E-89	9.575E-89	0.02%	1.5000-1.5000	1.504E-90	9.575E-90	0.02%	1.5000-1.5000	1.504E-91	9.575E-91	0.02%	1.5000-1.5000	1.504E-92	9.575E-92	0.02%	1.5000-1.5000	1.504E-93	9.575E-93	0.02%	1.5000-1.5000	1.504E-94	9.575E-94	0.02%	1.5000-1.5000	1.504E-95	9.575E-95	0.02%	1.5000-1.5000	1.504E-96	9.575E-96	0.02%	1.5000-1.5000	1.504E-97	9.575E-97	0.02%	1.5000-1.5000	1.504E-98	9.575E-98	0.02%	1.5000-1.5000	1.504E-99	9.575E-99	0.02%	1.5000-1.5000	1.504E-100	9.575E-100	0.02%	1.5000-1.5000	1.504E-101	9.575E-101	0.02%	1.5000-1.5000	1.504E-102	9.575E-102	0.02%	1.5000-1.5000	1.504E-103	9.575E-103	0.02%	1.5000-1.5000	1.504E-104	9.575E-104	0.02%	1.5000-1.5000	1.504E-105	9.575E-105	0.02%	1.5000-1.5000	1.504E-106	9.575E-106	0.02%	1.5000-1.5000	1.504E-107	9.575E-107	0.02%	1.5000-1.5000	1.504E-108	9.575E-108	0.02%	1.5000-1.5000	1.504E-109	9.575E-109	0.02%	1.5000-1.5000	1.504E-110	9.575E-110	0.02%	1.5000-1.5000	1.504E-111	9.575E-111	0.02%	1.5000-1.5000	1.504E-112	9.575E-112	0.02%	1.5000-1.5000	1.504E-113	9.575E-113	0.02%	1.5000-1.5000	1.504E-114	9.575E-114	0.02%	1.5000-1.5000	1.504E-115	9.575E-115	0.02%	1.5000-1.5000	1.504E-116	9.575E-116	0.02%	1.5000-1.5000	1.504E-117	9.575E-117	0.02%	1.5000-1.5000	1.504E-118	9.575E-118	0.02%	1.5000-1.5000	1.504E-119	9.575E-119	0.02%	1.5000-1.5000	1.504E-120	9.575E-120	0.02%	1.5000-1.5000	1.504E-121	9.575E-121	0.02%	1.5000-1.5000	1.504E-122	9.575E-122	0.02%	1.5000-1.5000	1.504E-123	9.575E-123	0.02%	1.5000-1.5000	1.504E-124	9.575E-124	0.02%	1.5000-1.5000	1.504E-125	9.575E-125	0.02%	1.5000-1.5000	1.504E-126	9.575E-126	0.02%	1.5000-1.5000	1.504E-127	9.575E-127	0.02%	1.5000-1.5000	1.504E-128	9.575E-128	0.02%	1.5000-1.5000	1.504E-129	9.575E-129	0.02%	1.5000-1.5000	1.504E-130	9.575E-130	0.02%	1.5000-1.5000	1.504E-131	9.575E-131	0.02%	1.5000-1.5000	1.504E-132	9.575E-132	0.02%	1.5000-1.5000	1.504E-133	9.575E-133	0.02%	1.5000-1.5000	1.504E-134	9.575E-134	0.02%	1.5000-1.5000	1.504E-135	9.575E-135	0.02%	1.5000-1.5000	1.504E-136	9.575E-136	0.02%	1.5000-1.5000	1.504E-137	9.575E-137	0.02%	1.5000-1.5000	1.504E-138	9.575E-138	0.02%	1.5000-1.5000	1.504E-139	9.575E-139	0.02%	1.5000-1.5000	1.504E-140	9.575E-140	0.02%	1.5000-1.5000	1.504E-141	9.575E-141	0.02%	1.5000-1.5000	1.504E-142	9.575E-142	0.02%	1.5000-1.5000	1.504E-143	9.575E-143	0.02%	1.5000-1.5000	1.504E-144	9.575E-144	0.02%	1.5000-1.5000	1.504E-145	9.575E-145	0.02%	1.5000-1.5000	1.504E-146	9.575E-146	0.02%	1.5000-1.5000	1.504E-147	9.575E-147	0.02%	1.5000-1.5000	1.504E-148	9.575E-148	0.02%	1.5000-1.5000	1.504E-149	9.575E-149	0.02%	1.5000-1.5000	1.504E-150	9.575E-150	0.02%	1.5000-1.5000	1.504E-151	9.575E-151	0.02%	1.5000-1.5000	1.504E-152	9.575E-152	0.02%	1.5000-1.5000	1.504E-153	9.575E-153	0.02%	1.5000-1.5000	1.504E-154	9.575E-154	0.02%	1.5000-1.5000	1.504E-155	9.575E-155	0.02%	1.5000-1.5000	1.504E-156	9.575E-156	0.02%	1.5000-1.5000	1.504E-157	9.575E-157	0.02%	1.5000-1.5000	1.504E-158	9.575E-158	0.02%	1.5000-1.5000	1.504E-159	9.575E-159	0.02%	1.5000-1.5000	1.504E-160	9.575E-160	0.02%	1.5000-1.5000	1.504E-161	9.575E-161	0.02%	1.5000-1.5000	1.504E-162	9.575E-162	0.02%	1.5000-1.5000	1.504E-163	9.575E-163	0.02%	1.5000-1.5000	1.504E-164	9.575E-164	0.02%	1.5000-1.5000	1.504E-165	9.575E-165	0.02%	1.5000-1.5000	1.504E-166	9.575E-166	0.02%	1.5000-1.5000	1.504E-167	9.575E-167	0.02%	1.5000-1.5000	1.504E-168	9.575E-168	0.02%	1.5000-1.5000	1.504E-169	9.575E-169	0.02%	1.5000-1.5000	1.504E-170	9.575E-170	0.02%	1.5000-1.5000	1.504E-171	9.575E-171	0.02%	1.5000-1.5000	1.504E-172	9.575E-172	0.02%	1.5000-1.5000	1.504E-173	9.575E-173	0.02%	1.5000-1.5000	1.504E-174	9.575E-174	0.02%	1.5000-1.5000	1.504E-175	9.575E-175	0.02%	1.5000-1.5000	1.504E-176	9.575E-176	0.02%	1.5000-1.5000	1.504E-177	9.575E-177	0.02%	1.5000-1.5000	1.504E-178	9.575E-178	0.02%	1.5000-1.5000	1.504E-179	9.575E-179	0.02%	1.5000-1.5000	1.504E-180	9.575E-180	0.02%	1.5000-1.5000	1.504E-181	9.575E-181	0.02%	1.5000-1.5000	1.504E-182	9.575E-182	0.02%	1.5000-1.5000	1.504E-183	9.575E-183	0.02%	1.5000-1.5000	1.504E-184	9.575E-184	0.02%	1.5000-1.5000	1.504E-185	9.575E-185	0.02%	1.5000-1.5000	1.504E-186	9.575E-186	0.02%	1.5000-1.5000	1.504E-187	9.575E-187	0.02%	1.5000-1.5000	1.504E-188	9.575E-188	0.02%	1.5000-1.5000	1.504E-189	9.575E-189	0.02%	1.5000-1.5000	1.504E-190	9.575E-190	0.02%	1.5000-1.5000	1.504E-191	9.575E-191	0.02%	1.5000-1.5000	1.504E-192	9.575E-192	0.02%	1.5000-1.5000	1.504E-193	9.575E-193	0.02%	1.5

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\*\* G-BITAL FLUX STUDY WITH COMPOSITE PARTICLE ENVIRONMENTS: VETTES AER: A67 - UFF: 1 FOR SCLR MAXIMUM EMISSIONS UNIFLUX - UFF: 1.164  
 \*\* UNCERTAINTY FACTORS (APG) APPLIED FOR THIS RUN ARE: 1.011 C. COORDINATES B AND COMPUTED BY INVARA OF 1.572. PERIOD: 1-175 - TIME: 1.099.2  
 \*\* MAGNETIC COORDINATES (UFF) - UFF: 1.011 C. COORDINATES B AND COMPUTED BY INVARA OF 1.572. PERIOD: 1-175 - TIME: 1.099.2  
 \*\* VEHICLE: TOPPER 3 YEAR 2010. INCLINATION: 30.0 DEG. PERIOD: 1-175 KW APOGEE: 334 KM. PERIOD: 10537E 30 PERIOD: 1-175 - TIME: 1.099.2  
 \*\* FCR INFORMATION OR EXPLANATION CONTACT E.G. STASSINIS/POULCS AT NASA-GSFC/CODE 601, GREENBELT, MARYLAND 20771, TEL: (301)-344-5067  
 \*\* FCR INFORMATION OR EXPLANATION CONTACT E.G. STASSINIS/POULCS AT NASA-GSFC/CODE 601, GREENBELT, MARYLAND 20771, TEL: (301)-344-5067  
 \*\* TABLE OF PEAK AND TOTAL FILLES FOR PERIOD: ENERGY > 5.000MEV  
 \*\*

PERIOD NUMBER	PEAK FLUX #/CM <sup>2</sup> /SEC	POSITION AT WHICH ENCOUNTERED		CREDIT TIME (HOURS)	FIELD(BJ) (GAUSS)	LINES(L) (E.R.A.)	TOTAL FLUX #/CM <sup>2</sup> /SEC/ORB11
		LONGITUDE (DEG)	LATITUDE (DEG)				
1	1.735E+04	-2.677	-15.62	1.322E-23	1.05000	0.16299	1.4E-6
2	2.829E+04	-2.147	-15.63	1.328E-19	2.91667	0.14567	2.6E-6
3	3.081E+04	-2.646	-21.25	1.322E-19	4.80000	0.1167	2.6E-6
4	1.502E+04	-6.142	-23.46	1.325E-13	6.68333	0.15890	1.4E-6
5	1.114E+04	-2.646	-31.16	1.33E-07	9.16667	0.17980	2.0E-6
6	1.570E+04	-2.645	-1.01	1.335E-14	1.10000	0.16648	1.4E-6
7	2.766E+04	-2.645	-23.55	1.336E-17	1.295000	0.14969	2.7E-6
8	3.292E+04	-2.636	-15.56	1.334E-14	1.69500	0.201	2.6E-6
9	1.757E+04	-2.636	-2.37	1.336E-14	1.67000	0.14742	1.4E-6
10	3.588E+03	-6.56	-6.53	1.334E-02	1.68664	0.1544	1.4E-6
11	2.065E+03	1.447	-1.74	1.334E-02	20.54339	0.175	1.4E-6
12	2.022E+03	1.413	-13.55	1.327E-00	21.58331	0.16446	1.4E-6

\*\* G-BITAL FLUX STUDY WITH COMPOSITE PARTICLE ENVIRONMENTS: VETTES AER: A67 - UFF: 1 FOR SCLR MAXIMUM EMISSIONS UNIFLUX - UFF: 1.164  
 \*\* UNCERTAINTY FACTORS (APG) APPLIED FOR THIS RUN ARE: 1.011 C. COORDINATES B AND COMPUTED BY INVARA OF 1.572. PERIOD: 1-175 - TIME: 1.099.2  
 \*\* MAGNETIC COORDINATES (UFF) - UFF: 1.011 C. COORDINATES B AND COMPUTED BY INVARA OF 1.572. PERIOD: 1-175 - TIME: 1.099.2  
 \*\* VEHICLE: TOPPER 3 YEAR 2010. INCLINATION: 30.0 DEG. PERIOD: 1-175 KW APOGEE: 334 KM. PERIOD: 10537E 30 PERIOD: 1-175 - TIME: 1.099.2  
 \*\* FCR INFORMATION OR EXPLANATION CONTACT E.G. STASSINIS/POULCS AT NASA-GSFC/CODE 601, GREENBELT, MARYLAND 20771, TEL: (301)-344-5067  
 \*\* FCR INFORMATION OR EXPLANATION CONTACT E.G. STASSINIS/POULCS AT NASA-GSFC/CODE 601, GREENBELT, MARYLAND 20771, TEL: (301)-344-5067  
 \*\* TABLE OF PEAK AND TOTAL FILLES FOR PERIOD: ENERGY > 5.000MEV  
 \*\*

PERIOD NUMBER	PEAK FLUX #/CM <sup>2</sup> /SEC	POSITION AT WHICH ENCOUNTERED		CREDIT TIME (HOURS)	FIELD(BJ) (GAUSS)	LINES(L) (E.R.A.)	TOTAL FLUX #/CM <sup>2</sup> /SEC/ORB11
		LONGITUDE (DEG)	LATITUDE (DEG)				
1	1.281E+04	-6.441	-11.13	1.325E-03	1.00000	0.15909	1.3E-6
2	4.155E+04	-3.142	-15.63	1.322E-19	2.91667	0.15867	1.3E-6
3	2.229E+04	-4.053	-25.56	1.323E-19	4.95000	0.14616	1.2E-6
4	1.229E+04	-6.106	-1.01	1.331E-14	5.33333	0.16227	1.4E-6
5	2.152E+04	0.053	-15.76	1.334E-17	6.15000	0.17657	1.2E-6
6	5.684E+03	-2.747	-23.45	1.332E-14	1.15000	0.16760	1.3E-6
7	3.904E+03	-2.623	-15.69	1.333E-14	12.98333	0.14922	1.3E-6
8	1.027E+03	-2.621	-2.35	1.337E-14	14.78333	0.14716	1.3E-6
9	4.267E+03	-4.526	-6.63	1.337E-14	16.66664	0.14284	1.3E-6
10	6.655E+03	0.650	-6.53	1.344E-02	16.86664	0.1644	1.3E-6
11	2.432E+03	4.213	-1.13	1.342E-14	19.23331	0.22782	4.7E-6
12	4.32E+03	4.213	-13.55	1.327E-00	21.58331	0.16446	1.4E-6

**TABLE 3**

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TABLE - 3. TOTAL 3 YEAR CIRCULAR

INCLINATION:	63 DEG	TOPEA 2 YEAR CIRCULAR
PERIGEE:	1324 KM	INCIDENCE ANG: 63 DEG
APOGEE:	1324 KM	PERIGEE: 1324 KM

6005 EXPOSURE ANALYSIS 0000

* PERCENT OF TOTAL LIFETIME SPENT INSIDE AND OUTSIDE THE TRAPPED-PARTICLE RADIATION BELT	
ELECTRONS (L < 5000 MEV)	OUTER ZONE : 65.35 %
(E > 5000 MEV)	INNER ZONE : 71.0 %
PROTONS (E > 0.05 MEV)	(1.0 < L < 2.0)
PERCENT OF TOTAL LIFE-	OUTER ZONE : 70.0 %
TIME SPENT IN FLUX-FREE	INNER ZONE : 10.51 %
REGIONS OF SPACE	EXTERNAL : 10.10 %
PERCENT OF TOTAL LIFE-	INTERNAL : 2.75 %
TIME SPENT IN HIGH-INTEN-	(L > 11.0)
SITY REGIONS OF	TOTAL : 100.00 %
VAN ALLEN BELTS :	
PERCENT OF TOTAL DAILY	
FLUX ACCUMULATED IN	
+100-INTERVAL REGIONS:	
\$7.00 %	93.34 %

\* TIME IN INNER ZONE MAY BE SUCDIVIDED AS FOLLOWS:

OUTSIDE TRAPPING REGION :	C.C. X
(1.0 < L < 1.1)	
INSIDE TRAPPING REGION :	65.35 %

\* <1 PARTICLE/CHEM 2/SEC

\* 1.05 E1 CHEM 2/SEC OR 1.05 PRACHEM 2/SEC

TABLE 4

ENERGY LEVELS > (MEV)	$\epsilon_0$	$\epsilon_t$	MISSION DURATION T=36 MONTHS			SHIELDING EFFECTIVE EXPOSURE RATE	TIME
			CONFIDENCE LEVEL 90	95	99		
10.0	4.528E-05	4.528E-05	6.791E-09	1.132E-10	1.324	10.44	
20.0	3.164E-05	3.164E-05	4.657E-09	7.615E-09	1.324	1.937	
30.0	2.129E-05	2.129E-05	3.193E-09	5.321E-09	1.324	1.021	
40.0	1.460E-05	1.460E-05	2.189E-09	3.649E-09	1.324	0.787	
50.0	1.061E-05	1.061E-05	1.504E-09	2.604E-09	1.324	0.655	
60.0	7.622E-06	7.622E-06	1.029E-09	1.715E-09	1.324	0.559	
70.0	5.715E-06	5.715E-06	7.057E-09	1.171E-09	1.324	0.480	
80.0	4.226E-06	4.226E-06	5.039E-09	8.005E-09	1.324	0.420	
90.0	3.120E-06	3.120E-06	3.512E-09	5.305E-09	1.324	0.368	
100.0	2.157E-06	2.157E-06	2.517E-09	3.792E-09	1.324	0.325	
110.0	1.401E-06	1.401E-06	1.800E-09	2.600E-09	1.324	0.290	
120.0	7.121E-07	7.121E-07	1.131E-09	1.670E-09	1.324	0.262	
130.0	4.465E-07	4.465E-07	7.344E-09	1.124E-09	1.324	0.238	
140.0	3.252E-07	3.252E-07	5.735E-09	8.581E-09	1.324	0.217	
150.0	2.259E-07	2.259E-07	4.255E-09	6.448E-09	1.324	0.197	
160.0	1.570E-07	1.570E-07	3.070E-09	4.940E-09	1.324	0.180	
170.0	1.081E-07	1.081E-07	2.081E-09	3.940E-09	1.324	0.167	
180.0	7.410E-08	7.410E-08	1.410E-09	2.612E-09	1.324	0.152	
190.0	5.084E-08	5.084E-08	1.010E-09	1.727E-09	1.324	0.140	
200.0	3.484E-08	3.484E-08	7.054E-09	5.226E-09	1.324	0.130	

TABLE 5

ORIGINAL PAGE IS  
OF POOR QUALITY

SHELD-THICKNESS (CALCIUM)		ELECTRONS		PROTONS		TOTAL		TOTAL ALL SOURCES	
SHELD-THICKNESS (TITANIUM)	TITANIUM	INNER ZN TRADE-ALI	OUTER ZN TRADE-ALI	TRAPPED+ TRADES-FLY	TRAPPED+ TRADES-FLY	TRAPPED+ TRADES-FLY	TRAPPED+ TRADES-FLY	TRAPPED+ TRADES-FLY	TRAPPED+ TRADES-FLY
0.01	0.04	1.	5.221E-05	2.4883E-03	1.625E-04	6.018E-02	1.621E-01	5.412E-06	5.412E-06
0.02	0.01	1.	2.511E-05	1.115E-03	7.686E-04	3.072E-02	7.622E-01	3.018E-06	3.018E-06
0.03	0.01	4.	1.715E-05	1.194E-03	5.514E-04	6.177E-02	6.718E-01	2.001E-06	2.001E-06
0.04	0.04	6.	1.146E-05	1.281E-03	4.249E-03	6.518E-04	6.722E-02	6.722E-06	6.722E-06
0.05	0.05	19.	7.651E-05	1.786E-03	1.051E-03	3.848E-04	6.514E-02	6.514E-06	6.514E-06
0.06	0.06	5.	5.421E-05	6.212E-03	8.987E-02	3.407E-04	6.717E-02	6.686E-05	6.686E-05
0.07	0.07	10.	3.872E-05	4.537E-03	7.803E-02	3.057E-04	6.777E-02	6.777E-05	6.777E-05
0.08	0.08	12.	3.277E-05	3.646E-03	6.812E-02	2.757E-04	6.711E-02	6.655E-05	6.655E-05
0.09	0.09	13.	2.643E-05	3.525E-03	6.332E-02	2.457E-04	6.552E-02	6.244E-05	6.244E-05
0.10	0.10	15.	2.138E-05	5.355E-03	5.355E-02	1.390E-04	6.222E-02	2.455E-04	2.455E-05
0.11	0.11	2.6	2.038E-05	4.203E-03	4.203E-02	1.486E-04	5.815E-02	1.515E-04	6.143E-04
0.12	0.12	2.9	2.038E-05	4.203E-03	4.203E-02	1.284E-04	5.229E-02	1.666E-04	3.746E-04
0.13	0.13	4.	1.715E-05	1.715E-03	1.715E-02	9.281E-05	5.229E-02	3.313E-04	5.229E-04
0.14	0.14	4.	1.273E-05	1.273E-03	1.273E-02	6.001E-05	3.313E-02	4.232E-04	4.232E-04
0.15	0.15	7.3	7.524E-05	7.524E-03	1.322E-02	8.001E-05	2.317E-02	1.432E-04	1.432E-04
0.16	0.16	1.7	6.176E-05	6.176E-03	1.167E-02	7.130E-05	2.130E-02	1.735E-04	1.735E-04
0.17	0.17	6.211E-05	6.211E-03	2.410E-03	6.228E-05	6.146E-03	2.097E-02	8.375E-05	8.375E-05
0.18	0.18	7.9	5.737E-05	5.737E-03	1.207E-02	7.688E-05	5.699E-03	1.497E-02	6.411E-03
0.19	0.19	1.02	5.625E-05	5.625E-03	6.098E-02	4.697E-05	4.697E-03	5.625E-02	5.625E-03
0.20	0.20	1.22	6.212E-05	6.212E-03	5.522E-02	5.447E-05	5.447E-03	1.205E-02	4.697E-03
0.21	0.21	1.42	6.152E-05	6.152E-03	5.152E-02	4.932E-05	4.932E-03	9.474E-03	4.932E-03
0.22	0.22	1.62	6.152E-05	6.152E-03	4.762E-02	4.476E-05	4.476E-03	7.957E-03	4.476E-03
0.23	0.23	1.82	6.152E-05	6.152E-03	4.476E-02	4.020E-05	4.020E-03	6.447E-03	4.020E-03
0.24	0.24	2.02	6.152E-05	6.152E-03	4.202E-02	3.564E-05	3.564E-03	5.937E-03	3.564E-03
0.25	0.25	2.22	6.152E-05	6.152E-03	3.922E-02	3.108E-05	3.108E-03	5.427E-03	3.108E-03
0.26	0.26	2.42	6.152E-05	6.152E-03	3.642E-02	2.652E-05	2.652E-03	4.917E-03	2.652E-03
0.27	0.27	2.62	6.152E-05	6.152E-03	3.362E-02	2.296E-05	2.296E-03	4.407E-03	2.296E-03
0.28	0.28	2.82	6.152E-05	6.152E-03	3.082E-02	1.940E-05	1.940E-03	3.997E-03	1.940E-03
0.29	0.29	3.02	6.152E-05	6.152E-03	2.802E-02	1.584E-05	1.584E-03	3.587E-03	1.584E-03
0.30	0.30	3.22	6.152E-05	6.152E-03	2.522E-02	1.228E-05	1.228E-03	3.177E-03	1.228E-03
0.31	0.31	3.42	6.152E-05	6.152E-03	2.242E-02	8.722E-06	8.722E-03	2.767E-03	8.722E-03
0.32	0.32	3.62	6.152E-05	6.152E-03	1.962E-02	5.216E-06	5.216E-03	2.357E-03	5.216E-03
0.33	0.33	3.82	6.152E-05	6.152E-03	1.682E-02	1.682E-06	1.682E-03	2.947E-03	1.682E-03
0.34	0.34	4.02	6.152E-05	6.152E-03	1.402E-02	1.326E-06	1.326E-03	2.537E-03	1.326E-03
0.35	0.35	4.22	6.152E-05	6.152E-03	1.122E-02	9.650E-07	9.650E-03	2.127E-03	9.650E-03
0.36	0.36	4.42	6.152E-05	6.152E-03	8.422E-03	6.035E-07	6.035E-03	1.717E-03	6.035E-03
0.37	0.37	4.62	6.152E-05	6.152E-03	5.617E-03	2.419E-07	2.419E-03	1.307E-03	2.419E-03
0.38	0.38	4.82	6.152E-05	6.152E-03	2.810E-03	8.803E-08	8.803E-03	8.803E-03	8.803E-03
0.39	0.39	5.02	6.152E-05	6.152E-03	1.023E-03	4.209E-08	4.209E-03	4.209E-03	4.209E-03
0.40	0.40	5.22	6.152E-05	6.152E-03	2.236E-04	1.843E-08	1.843E-03	1.843E-03	1.843E-03
0.41	0.41	5.42	6.152E-05	6.152E-03	4.472E-04	7.577E-09	7.577E-03	7.577E-03	7.577E-03
0.42	0.42	5.62	6.152E-05	6.152E-03	6.712E-04	3.305E-09	3.305E-03	3.305E-03	3.305E-03
0.43	0.43	5.82	6.152E-05	6.152E-03	9.952E-04	1.461E-09	1.461E-03	1.461E-03	1.461E-03
0.44	0.44	6.02	6.152E-05	6.152E-03	1.219E-03	6.219E-10	6.219E-03	6.219E-03	6.219E-03
0.45	0.45	6.22	6.152E-05	6.152E-03	1.439E-03	2.459E-10	2.459E-03	2.459E-03	2.459E-03
0.46	0.46	6.42	6.152E-05	6.152E-03	1.659E-03	4.240E-10	4.240E-03	4.240E-03	4.240E-03
0.47	0.47	6.62	6.152E-05	6.152E-03	1.879E-03	6.021E-10	6.021E-03	6.021E-03	6.021E-03
0.48	0.48	6.82	6.152E-05	6.152E-03	2.098E-03	7.802E-10	7.802E-03	7.802E-03	7.802E-03
0.49	0.49	7.02	6.152E-05	6.152E-03	2.317E-03	9.583E-10	9.583E-03	9.583E-03	9.583E-03
0.50	0.50	7.22	6.152E-05	6.152E-03	2.536E-03	1.137E-09	1.137E-02	1.137E-02	1.137E-02
0.51	0.51	7.42	6.152E-05	6.152E-03	2.755E-03	1.316E-09	1.316E-02	1.316E-02	1.316E-02
0.52	0.52	7.62	6.152E-05	6.152E-03	2.974E-03	1.495E-09	1.495E-02	1.495E-02	1.495E-02
0.53	0.53	7.82	6.152E-05	6.152E-03	3.193E-03	1.674E-09	1.674E-02	1.674E-02	1.674E-02
0.54	0.54	8.02	6.152E-05	6.152E-03	3.412E-03	1.853E-09	1.853E-02	1.853E-02	1.853E-02
0.55	0.55	8.22	6.152E-05	6.152E-03	3.631E-03	2.032E-09	2.032E-02	2.032E-02	2.032E-02
0.56	0.56	8.42	6.152E-05	6.152E-03	3.850E-03	2.211E-09	2.211E-02	2.211E-02	2.211E-02
0.57	0.57	8.62	6.152E-05	6.152E-03	4.069E-03	2.390E-09	2.390E-02	2.390E-02	2.390E-02
0.58	0.58	8.82	6.152E-05	6.152E-03	4.288E-03	2.569E-09	2.569E-02	2.569E-02	2.569E-02
0.59	0.59	9.02	6.152E-05	6.152E-03	4.507E-03	2.748E-09	2.748E-02	2.748E-02	2.748E-02
0.60	0.60	9.22	6.152E-05	6.152E-03	4.726E-03	2.927E-09	2.927E-02	2.927E-02	2.927E-02
0.61	0.61	9.42	6.152E-05	6.152E-03	4.945E-03	3.106E-09	3.106E-02	3.106E-02	3.106E-02
0.62	0.62	9.62	6.152E-05	6.152E-03	5.164E-03	3.285E-09	3.285E-02	3.285E-02	3.285E-02
0.63	0.63	9.82	6.152E-05	6.152E-03	5.383E-03	3.464E-09	3.464E-02	3.464E-02	3.464E-02
0.64	0.64	10.02	6.152E-05	6.152E-03	5.602E-03	3.643E-09	3.643E-02	3.643E-02	3.643E-02
0.65	0.65	10.22	6.152E-05	6.152E-03	5.821E-03	3.822E-09	3.822E-02	3.822E-02	3.822E-02
0.66	0.66	10.42	6.152E-05	6.152E-03	6.040E-03	4.001E-09	4.001E-02	4.001E-02	4.001E-02
0.67	0.67	10.62	6.152E-05	6.152E-03	6.259E-03	4.179E-09	4.179E-02	4.179E-02	4.179E-02
0.68	0.68	10.82	6.152E-05	6.152E-03	6.478E-03	4.358E-09	4.358E-02	4.358E-02	4.358E-02
0.69	0.69	11.02	6.152E-05	6.152E-03	6.697E-03	4.537E-09	4.537E-02	4.537E-02	4.537E-02
0.70	0.70	11.22	6.152E-05	6.152E-03	6.916E-03	4.716E-09	4.716E-02	4.716E-02	4.716E-02
0.71	0.71	11.42	6.152E-05	6.152E-03	7.135E-03	4.895E-09	4.895E-02	4.895E-02	4.895E-02
0.72	0.72	11.62	6.152E-05	6.152E-03	7.354E-03	5.074E-09	5.074E-02	5.074E-02	5.074E-02
0.73	0.73	11.82	6.152E-05	6.152E-03	7.573E-03	5.253E-09	5.253E-02	5.253E-02	5.253E-02
0.74	0.74	12.02	6.152E-05	6.152E-03	7.792E-03	5.432E-09	5.432E-02	5.432E-02	5.432E-02
0.75	0.75	12.22	6.152E-05	6.152E-03	7.911E-03	5.611E-09	5.611E-02	5.611E-02	5.611E-02
0.76	0.76	12.42	6.152E-05	6.152E-03	8.130E-03	5.79E-09	5.79E-02	5.79E-02	5.79E-02
0.77	0.77	12.62	6.152E-05	6.152E-03	8.349E-03	5.979E-09	5.979E-02	5.979E-02	5.979E-02
0.78	0.78	12.82	6.152E-05	6.152E-03	8.568E-03	6.158E-09	6.158E-02	6.158E-02	6.158E-02
0.79	0.79	13.02	6.152E-05	6.152E-03	8.787E-03	6.337E-09	6.337E-02	6.337E-02	6.337E-02
0.80	0.80	13.22	6.152E-05	6.152E-03	9.006E-03	6.516E-09	6.516E-02	6.516E-02	6.516E-02
0.81	0.81	13.42	6.152E-05	6.152E-03	9.225E-03	6.695E-09	6.695E-02	6.695E-02	6.695E-02
0.82	0.82	13.62	6.152E-05	6.152E-03	9.444E-03	6.874E-09	6.874E-02	6.874E-02	6.874E-02
0.83	0.83	13.82	6.152E-05	6.152E-03	9.663E-03	7.053E-09	7.053E-02	7.053E-02	7.053E-02
0.84	0.84	14.02	6.152E-05	6.152E-03	9.882E-03	7.232E-09	7.232E-02	7.232E-02	7.232E-02
0.85	0.85	14.22	6.152E-05	6.152E-03	1.011E-02	7.411E-09	7.411E-02	7.411E-02	7.411E-02
0.86	0.86	14.42	6.152E-05	6.152E-03	1.030E-02	7.589E-09	7.589E-02	7.589E-02	7.589E-02
0.87	0.87	14.62	6.152E-05	6.152E-03	1.049E-02	7.768E-09	7.768E-02	7.768E-02	7.768E-02
0.88	0.88	14.82	6.152E-05	6.152E-03	1.068E-02	7.947E-09	7.947E-02	7.947E-02	7.947E-02
0.89	0.89	15.02	6.152E-05	6.152E-03	1.087E-02	8.126E-09	8.126E-02	8.126E-02	8.126E-02
0.90	0.90	15.22	6.152E-05	6.152E-03	1.106E-02	8.305E-09	8.305E-02	8.305E-02	8.305E-02
0.91	0.91</td								

**AEG: INNER ZONE-SOLAR MAX**

THE UNCERTAINTY FACTOR WAS APPLIED TO THE MODEL DATA.

**FIGURE 17:** CUTER ZONE-INTERIM MODEL WITHOLI SCALAR CYCLE DEFENCE. FOR ENERGIES ABOVE 1-2 MeV, THIS MODEL CONTAINS LOWER & LOWER LIMIT VALUES TO ACCOUNT FOR DISCREPANCY BETWEEN EXISTING DATA SETS. THE ACT-I-HI FAVOR VANDPOL'S FIT TO THE DATA WHILE ACT-II IS MORE REPRESENTATIVE OF

ALL THE DATA SETS PRESENTLY AVAILABLE TO NSDC.  
>> THE M17-LO VERSION WAS USED FOR THESE CALCULATIONS <<

MECEE:

FACT-TRAPPED-PROTON'S-SOLAR-WAY  
NO UNCERTAINTY FACTOR WAS APPLIED TO THE MODEL DATA.

TABLE E

SCL FEC: SOL AR FL AR

FOR CUT-OFF DIPOLE SHELL OF 5 E.R.  
EQUIL. 7.4 MO. AT 6500: A DE AN ENERGATE-12

ASSIGNS THE DEGREE OF CONFIDENCE ONE BILL SHE S  
ASSIGNS TO RESULTS, NAMELY THAT FOR THE  
SPECIFIC MISSION CURATION THE CALCULATED  
SEQUENCES ARE THE SMALLEST VALUES WHICH BILL  
CAN BE 5-22 GEOMAGNETIC SHIELDING APPLIED

IT IS NOT ADVISED TO EXPLORE THE SOLAR SPECTRUM TOWARD LONGER WAVELENGTHS. HIGHER ENERGIES BECAUSE DATA SETS OBTAINED DURING CONSTRUCTION OF THE MOONLIGHT SATISFACTORILY MEASUREMENTS MADE DURING THE 20TH SOLAR CYCLE (1964-1972) DO NOT CONTAIN INFORMATION ACCORDING TO THE EIGHT MEV.

TABLE 6

SHIELD THICKNESS (ALUMINUM)	ELECTRONS			INNER ZN- (RAE-S-AL)			OUTER ZN- (RAE-S-AL)			EMISSIVE- AMPLIFICATION			PROTONS			TOTAL		
	S	T	R	TOTAL	RAE-S-AL	RAE-S-AL	TOTAL	RAE-S-AL	RAE-S-AL	TOTAL	RAE-S-AL	RAE-S-AL	TOTAL	RAE-S-AL	RAE-S-AL	TOTAL	DOSE RAD-S-AL	ALL SOURCES (RAE-S-AL)
0.01	0.04	1.	6.112E-06	4.637E-05	6.557E-05	3.981E-03	1.625E-05	6.018E-02	1.611E-02	8.764E-06	6.112E-04	7.922E-03	6.557E-05	6.018E-02	1.625E-05	6.018E-02	1.611E-02	8.764E-06
0.02	0.07	3.	4.472E-06	2.700E-05	4.767E-05	2.070E-03	5.653E-05	6.117E-02	7.922E-02	4.249E-06	4.661E-04	2.107E-03	5.653E-05	6.117E-02	7.922E-02	4.249E-06	4.661E-04	2.107E-03
0.03	0.11	4.	2.714E-06	2.173E-05	2.561E-05	2.107E-03	6.651E-05	6.222E-02	6.651E-02	1.525E-06	6.651E-04	1.667E-03	6.222E-05	6.651E-02	6.222E-05	6.651E-04	1.525E-06	1.667E-03
0.04	0.15	6.	1.762E-06	1.651E-05	1.949E-05	1.667E-03	3.648E-05	6.254E-02	5.712E-02	1.273E-06	5.712E-04	1.353E-03	3.648E-05	6.254E-02	5.712E-05	5.712E-04	1.353E-03	1.273E-06
0.05	0.19	7.	1.155E-06	1.276E-05	1.333E-05	1.353E-03	3.648E-05	6.254E-02	5.712E-02	1.273E-06	5.712E-04	1.353E-03	3.648E-05	6.254E-02	5.712E-05	5.712E-04	1.353E-03	1.273E-06
0.06	0.22	9.	8.144E-07	9.526E-06	5.598E-05	1.310E-03	3.401E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.310E-03	3.401E-04	6.271E-02	6.271E-05	6.271E-04	1.310E-03	1.273E-06
0.07	0.25	10.	5.446E-07	6.526E-06	4.684E-05	9.661E-03	3.057E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.034E-02	3.057E-04	6.271E-02	6.271E-05	6.271E-04	1.034E-02	1.273E-06
0.08	0.27	12.	4.151E-07	4.764E-06	3.659E-05	8.110E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	7.314E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	7.314E-02	1.273E-06
0.09	0.29	13.	3.062E-07	3.764E-06	3.659E-05	7.370E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	6.533E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	6.533E-02	1.273E-06
0.10	0.31	14.	2.277E-07	2.764E-06	3.659E-05	6.600E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	5.355E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	5.355E-02	1.273E-06
0.12	0.34	15.	1.652E-07	2.324E-06	3.659E-05	5.864E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	4.626E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	4.626E-02	1.273E-06
0.15	0.39	18.	1.145E-07	1.610E-06	3.659E-05	4.164E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	3.164E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	3.164E-02	1.273E-06
0.20	0.44	25.	7.322E-08	1.145E-06	3.659E-05	2.128E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.533E-02	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.533E-02	1.273E-06
0.30	0.49	44.	4.630E-08	6.532E-07	3.659E-05	1.128E-02	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	8.532E-03	2.576E-04	6.271E-02	6.271E-05	6.271E-04	8.532E-03	1.273E-06
0.50	0.53	73.	2.712E-08	3.522E-07	3.659E-05	5.322E-03	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	4.532E-03	2.576E-04	6.271E-02	6.271E-05	6.271E-04	4.532E-03	1.273E-06
0.66	0.66	87.	2.271E-08	2.712E-07	3.659E-05	3.128E-03	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	2.128E-03	2.576E-04	6.271E-02	6.271E-05	6.271E-04	2.128E-03	1.273E-06
0.80	0.79	117.	1.946E-08	2.468E-07	3.659E-05	2.128E-03	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.613E-03	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.613E-03	1.273E-06
1.00	0.97	146.	1.462E-08	1.712E-07	3.659E-05	1.128E-03	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	7.812E-04	2.576E-04	6.271E-02	6.271E-05	6.271E-04	7.812E-04	1.273E-06
1.25	1.25	187.	1.024E-08	1.212E-07	3.659E-05	6.271E-04	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	4.024E-04	2.576E-04	6.271E-02	6.271E-05	6.271E-04	4.024E-04	1.273E-06
1.67	1.67	263.	6.271E-09	6.271E-08	3.659E-05	3.128E-04	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	2.024E-04	2.576E-04	6.271E-02	6.271E-05	6.271E-04	2.024E-04	1.273E-06
2.50	2.50	394.	3.644E-09	3.644E-08	3.659E-05	1.613E-04	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	9.644E-05	2.576E-04	6.271E-02	6.271E-05	6.271E-04	9.644E-05	1.273E-06
4.00	4.00	596.	2.122E-09	2.122E-08	3.659E-05	8.020E-05	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	5.022E-05	2.576E-04	6.271E-02	6.271E-05	6.271E-04	5.022E-05	1.273E-06
6.00	6.00	894.	1.322E-09	1.322E-08	3.659E-05	4.010E-05	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	2.611E-05	2.576E-04	6.271E-02	6.271E-05	6.271E-04	2.611E-05	1.273E-06
8.00	8.00	1291.	9.150E-10	9.150E-09	3.659E-05	2.005E-05	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.611E-05	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.611E-05	1.273E-06
10.00	10.00	1787.	6.271E-10	6.271E-09	3.659E-05	1.002E-05	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	9.644E-06	2.576E-04	6.271E-02	6.271E-05	6.271E-04	9.644E-06	1.273E-06
14.00	14.00	2631.	3.644E-10	3.644E-09	3.659E-05	5.010E-06	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	4.811E-06	2.576E-04	6.271E-02	6.271E-05	6.271E-04	4.811E-06	1.273E-06
20.00	20.00	4046.	2.122E-10	2.122E-09	3.659E-05	2.505E-06	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.486E-06	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.486E-06	1.273E-06
30.00	30.00	6072.	1.322E-10	1.322E-09	3.659E-05	1.257E-06	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	8.322E-07	2.576E-04	6.271E-02	6.271E-05	6.271E-04	8.322E-07	1.273E-06
45.00	45.00	9108.	8.020E-11	8.020E-09	3.659E-05	6.271E-07	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	5.022E-07	2.576E-04	6.271E-02	6.271E-05	6.271E-04	5.022E-07	1.273E-06
67.50	67.50	13662.	4.811E-11	4.811E-09	3.659E-05	3.128E-07	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	3.023E-07	2.576E-04	6.271E-02	6.271E-05	6.271E-04	3.023E-07	1.273E-06
101.25	101.25	20493.	3.023E-11	3.023E-09	3.659E-05	1.613E-07	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	2.024E-07	2.576E-04	6.271E-02	6.271E-05	6.271E-04	2.024E-07	1.273E-06
151.88	151.88	30739.	1.946E-11	1.946E-09	3.659E-05	1.002E-07	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.322E-07	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.322E-07	1.273E-06
227.82	227.82	45657.	1.257E-11	1.257E-09	3.659E-05	6.271E-08	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	8.322E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	8.322E-08	1.273E-06
341.16	341.16	68488.	8.322E-12	8.322E-09	3.659E-05	4.010E-08	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	5.022E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	5.022E-08	1.273E-06
481.74	481.74	102232.	5.022E-12	5.022E-09	3.659E-05	2.505E-08	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	3.023E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	3.023E-08	1.273E-06
721.11	721.11	148348.	3.344E-12	3.344E-09	3.659E-05	1.613E-08	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	2.024E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	2.024E-08	1.273E-06
1084.67	1084.67	222571.	2.122E-12	2.122E-09	3.659E-05	1.002E-08	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.322E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.322E-08	1.273E-06
1571.99	1571.99	323704.	1.486E-12	1.486E-09	3.659E-05	6.271E-09	2.576E-04	6.271E-02	6.271E-02	1.273E-06	6.271E-04	1.002E-08	2.576E-04	6.271E-02	6.271E-05	6.271E-04	1.002E-08	1.273E-06

ELECTRICAL MIGRATION

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SPECIFIC PLATE

ATENAU'ES IN PLANETARY CUTOFF DIPOLE SPELL OF 9 E.R.

FURTHER, TO THE PERSONS OF ALL EVENTS<sup>2</sup>  
86.539 GEORGE ALFRED SMITH HOLDING APPLIED  
NOT E: C DENOTES THE DEGREE OF CONFIDENCE ONE IS IN THE  
TC ASSIGN TO RESULTS, NAMELY THAT FOR THE  
SPECIFIC MISSION OR PURCHASE THE CHARACTERISTICS  
FLUENCES ARE THE SMALLEST VALUE WHICH BILL  
CAN BE EXPECTED BY ACTUALLY ENDEAVORED  
INVENTIONS.

2500

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THE BIBLICAL HISTORY OF THE JEWS

MC UMEKALAWI MCG 10M 045 1160

TABLE 7



ORIGINAL PAGE IS  
OF POOR QUALITY

\*\*\*\*\*  
 \* B E T A L I N F O R M A T I O N \*  
 \*-----  
 \* 1. B E T A L I N F O R M A T I O N : V E T E S A P B : A E C , A E T 7 F O R S C L A R , M A X I M U M      D S P      L N I F L X \_ O F \_ 1 . 0 8 4 .  
 \*-----  
 \* 2. U N C E R T A I N T Y F A C T O R S ( U F ) A P P L I E D F O R T H I S R U N A R E : F O R F R I C T I O N S ( A P O ) - U F = 1 . 0 ; F C F I N N E R Z O N E      E L E C T R O N S ( A E 6 ) - U F = 1 . 0 .  
 \*-----  
 \* 3. W I T H A L L M A G , M O D E L 4 : B A R R A L , O U G H E T , M L . 1 6 - E - T H M 1 5 7 5 . \*      T I M E = 1 5 6 9 . 2 .  
 \*-----  
 \* 4. M A G N E T I C C O O R D I N A T E S E A N D L . C O M P U T E D B Y I N V A R A T 1 5 7 2 . \*      P E R I O D = 1 3 3 4 K M . \*  
 \*-----  
 \* 5. V E H I C L E  $\rightarrow$  T O P E R - 3 Y E A R \* \* \*      I N C E - M A T I O N = + 3 0 6 6 . \* \* \*  
 \*-----  
 \* 6. F C R I N F O R M A T I O N C O N T A C T E . G . S T A S S I N C F U L O S A T N A S A - G S F C : C O D E 6 0 1 . G R E E B E L T , M A R Y L A N D 2 0 7 7 1 . T E L . ( 3 0 1 ) - 3 4 4 - 8 6 6 7 . \* \* \*

\*\*\*\*\*  
 \* B E T A L I N F O R M A T I O N \*  
 \*-----  
 \* 1. B E T A L I N F O R M A T I O N : V E T E S A P B : A E C , A E T 7 F O R S C L A R , M A X I M U M      D S P      L N I F L X \_ O F \_ 1 . 0 8 4 .  
 \*-----  
 \* 2. U N C E R T A I N T Y F A C T O R S ( U F ) A P P L I E D F O R T H I S R U N A R E : F O R F R I C T I O N S ( A P O ) - U F = 1 . 0 ; F C F I N N E R Z O N E      E L E C T R O N S ( A E 6 ) - U F = 1 . 0 .  
 \*-----  
 \* 3. W I T H A L L M A G , M O D E L 4 : B A R R A L , O U G H E T , M L . 1 6 - E - T H M 1 5 7 5 . \*      T I M E = 1 5 6 9 . 2 .  
 \*-----  
 \* 4. M A G N E T I C C O O R D I N A T E S E A N D L . C O M P U T E D B Y I N V A R A T 1 5 7 2 . \*      P E R I O D = 1 3 3 4 K M . \*  
 \*-----  
 \* 5. V E H I C L E  $\rightarrow$  T O P E R - 3 Y E A R \* \* \*      I N C E - M A T I O N = + 3 0 6 6 . \* \* \*  
 \*-----  
 \* 6. F C R I N F O R M A T I O N C O N T A C T E . G . S T A S S I N C F U L O S A T N A S A - G S F C : C O D E 6 0 1 . G R E E B E L T , M A R Y L A N D 2 0 7 7 1 . T E L . ( 3 0 1 ) - 3 4 4 - 8 6 6 7 . \* \* \*

* * * E X P O S U R E   P R O F I L E * * *		* * * A C C E S S I B I L I T Y   P R O F I L E * * *	
* * * I O N - C U T - O F F      T I M E   I N   N O R M A L I Z E D - L - B I N * * *		* * * I N V E R S E - S U M M A T I O N   N O R M A L I Z E D - L - B I N * * *	
L-BIN DEFINITION	RIGIDITY (GV)	L-BINS (MEAN) (GV)	EXPOSURE (HOURS)
L-RANGE	MEAN L-VALUE		
0.9-1.1	1.0	6571.	0.0
1.1-1.4	1.2	432.0	0.826
1.3-1.4	1.4	2137.	1.44
1.4-1.7	1.5	5.602	1.467
1.5-1.7	1.6	5.821	1.960
1.6-1.9	1.8	4.655	7.922
1.7-1.9	1.9	3.728	0.539
1.9-2.1	2.0	1.147	0.000
2.1-2.3	2.1	0.075	1.277
2.3-2.5	2.2	0.000	0.487
2.5-2.7	2.4	0.000	0.567
2.7-3.0	2.8	0.000	0.640
3.0-3.3	3.2	0.000	0.650
3.3-3.6	3.5	0.000	0.707
3.6-3.9	3.8	0.000	0.737
3.9-4.2	4.1	0.000	0.755
4.2-4.5	4.4	0.000	0.767
4.5-4.7	4.6	0.000	0.774
4.7-4.9	4.8	0.000	0.781
4.9-5.2	5.1	0.000	0.789
5.2-5.5	5.4	0.000	0.800
5.5-5.7	5.6	0.000	0.803
5.7-5.9	5.8	0.000	0.805
5.9-6.1	6.0	0.000	0.807
6.1-6.4	6.2	0.000	0.809
6.4-6.7	6.5	0.000	0.811
6.7-7.0	6.8	0.000	0.813
7.0-7.3	7.1	0.000	0.815
7.3-7.6	7.4	0.000	0.817
7.6-7.9	7.7	0.000	0.819
7.9-8.2	8.0	0.000	0.821
8.2-8.5	8.3	0.000	0.823
8.5-8.8	8.6	0.000	0.825
8.8-9.1	8.9	0.000	0.827
9.1-9.4	9.2	0.000	0.829
9.4-9.7	9.5	0.000	0.831
9.7-10.0	9.8	0.000	0.833
10.0-10.3	10.1	0.000	0.835
10.3-10.6	10.4	0.000	0.837
10.6-10.9	10.7	0.000	0.839
10.9-11.2	11.0	0.000	0.841
11.2-11.5	11.3	0.000	0.843
11.5-11.8	11.6	0.000	0.845
11.8-12.1	11.9	0.000	0.847
12.1-12.4	12.2	0.000	0.849
12.4-12.7	12.5	0.000	0.851
12.7-13.0	12.8	0.000	0.853
13.0-13.3	13.1	0.000	0.855
13.3-13.6	13.4	0.000	0.857
13.6-13.9	13.7	0.000	0.859
13.9-14.2	14.0	0.000	0.861
14.2-14.5	14.3	0.000	0.863
14.5-14.8	14.6	0.000	0.865
14.8-15.1	14.9	0.000	0.867
15.1-15.4	15.2	0.000	0.869
15.4-15.7	15.5	0.000	0.871
15.7-16.0	15.8	0.000	0.873
16.0-16.3	16.1	0.000	0.875
16.3-16.6	16.4	0.000	0.877
16.6-16.9	16.7	0.000	0.879
16.9-17.2	17.0	0.000	0.881
17.2-17.5	17.3	0.000	0.883
17.5-17.8	17.6	0.000	0.885
17.8-18.1	17.9	0.000	0.887
18.1-18.4	18.2	0.000	0.889
18.4-18.7	18.5	0.000	0.891
18.7-19.0	18.8	0.000	0.893
19.0-19.3	19.1	0.000	0.895
19.3-19.6	19.4	0.000	0.897
19.6-19.9	19.7	0.000	0.899
19.9-20.2	20.0	0.000	0.901
20.2-20.5	20.3	0.000	0.903
20.5-20.8	20.6	0.000	0.905
20.8-21.1	20.9	0.000	0.907
21.1-21.4	21.2	0.000	0.909
21.4-21.7	21.5	0.000	0.911
21.7-22.0	21.8	0.000	0.913
22.0-22.3	22.1	0.000	0.915
22.3-22.6	22.4	0.000	0.917
22.6-22.9	22.7	0.000	0.919
22.9-23.2	23.0	0.000	0.921
23.2-23.5	23.3	0.000	0.923
23.5-23.8	23.6	0.000	0.925
23.8-24.1	23.9	0.000	0.927
24.1-24.4	24.2	0.000	0.929
24.4-24.7	24.5	0.000	0.931
24.7-25.0	24.8	0.000	0.933
25.0-25.3	25.1	0.000	0.935
25.3-25.6	25.4	0.000	0.937
25.6-25.9	25.7	0.000	0.939
25.9-26.2	26.0	0.000	0.941
26.2-26.5	26.3	0.000	0.943
26.5-26.8	26.6	0.000	0.945
26.8-27.1	26.9	0.000	0.947
27.1-27.4	27.2	0.000	0.949
27.4-27.7	27.5	0.000	0.951
27.7-28.0	27.8	0.000	0.953
28.0-28.3	28.1	0.000	0.955
28.3-28.6	28.4	0.000	0.957
28.6-28.9	28.7	0.000	0.959
28.9-29.2	29.0	0.000	0.961
29.2-29.5	29.3	0.000	0.963
29.5-29.8	29.6	0.000	0.965
29.8-30.1	29.9	0.000	0.967
30.1-30.4	30.2	0.000	0.969
30.4-30.7	30.5	0.000	0.971
30.7-31.0	30.8	0.000	0.973
31.0-31.3	31.1	0.000	0.975
31.3-31.6	31.4	0.000	0.977
31.6-31.9	31.7	0.000	0.979
31.9-32.2	32.0	0.000	0.981
32.2-32.5	32.3	0.000	0.983
32.5-32.8	32.6	0.000	0.985
32.8-33.1	32.9	0.000	0.987
33.1-33.4	33.2	0.000	0.989
33.4-33.7	33.5	0.000	0.991
33.7-34.0	33.8	0.000	0.993
34.0-34.3	34.1	0.000	0.995
34.3-34.6	34.4	0.000	0.997
34.6-34.9	34.7	0.000	0.999
34.9-35.2	35.0	0.000	1.000

\* ENERGY AT MEAN L-VALUE  
\*\* NORMALIZATION BY TOTAL EXPOSURE TIME CONSIDERED IN  
THIS ANALYSIS THE TIME IS THE ACTIVE TIME

TABLE 9

**ORIGINAL PAGE IS  
OF POOR QUALITY**

TOPX COSMIC RAY ANALYSIS, SOLAR MINIMUM, FOR: 1980-12-01 PERIOD: 1-8723

MODEL = BARBI TIME: 1980-12-01 ATOMIC-C-MIN 12-ATOMIC-C-MIN 4-0053

-03E-00 0C8+334-1334-00

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY<sup>-1</sup>MEV/N)

MAGNETOSPHERICALLY

ATTEN- UNATTEN-

UATED ENERGY U-01 0.03 0.05 0.07 0.10 0.30 0.50 1.0 3.0 5.0 10.0

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	U-01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12.0	6.60E-00	6.98E-01	0.20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.01E-02	7.30E-02	1.17E-01	1.37E-01	1.35E-01	1.34E-01
14.0	6.90E-00	6.94E-01	0.23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.30E-02	7.64E-02	1.13E-01	1.32E-01	1.31E-01	1.30E-01
16.0	7.00E-00	6.80E-01	0.29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.70E-02	7.90E-02	1.10E-01	1.29E-01	1.28E-01	1.27E-01
20.0	7.02E-00	6.77E-01	0.32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-02	8.30E-02	1.07E-01	1.26E-01	1.25E-01	1.24E-01
25.0	7.44E-01	6.76E-01	0.36	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-02	8.70E-02	1.04E-01	1.23E-01	1.22E-01	1.21E-01
30.0	7.41E-01	6.79E-01	0.41	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.90E-02	9.10E-02	1.01E-01	1.20E-01	1.19E-01	1.18E-01
35.0	7.10E-01	6.92E-01	0.46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.30E-02	9.50E-02	9.80E-02	1.17E-01	1.16E-01	1.15E-01
40.0	7.48E-01	7.08E-01	0.59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-02	9.90E-02	1.04E-01	1.21E-01	1.20E-01	1.19E-01
45.0	7.66E-01	7.29E-01	0.67	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-01	1.03E-01	1.11E-01	1.28E-01	1.27E-01	1.26E-01
50.0	7.24E-01	7.36E-01	0.75	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-01	1.07E-01	1.15E-01	1.32E-01	1.31E-01	1.30E-01
60.0	5.77E-01	5.65E-01	0.95	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-01	1.12E-01	1.21E-01	1.48E-01	1.47E-01	1.46E-01
64.0	5.57E-01	5.96E-01	1.08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01	1.17E-01	1.26E-01	1.53E-01	1.52E-01	1.51E-01
70.0	5.77E-01	4.94E-01	1.21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-01	1.23E-01	1.32E-01	1.59E-01	1.58E-01	1.57E-01
76.0	5.93E-01	4.97E-01	1.37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-01	1.28E-01	1.37E-01	1.64E-01	1.63E-01	1.62E-01
80.0	5.04E-01	5.24E-01	1.54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-01	1.33E-01	1.42E-01	1.79E-01	1.78E-01	1.77E-01
90.0	5.24E-01	5.62E-01	1.74	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-01	1.38E-01	1.47E-01	1.85E-01	1.84E-01	1.83E-01
91.0	2.22E-01	5.99E-00	1.96	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-01	1.45E-01	1.54E-01	2.00E-01	1.99E-01	1.98E-01
100.0	3.37E-01	6.47E-00	2.21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-01	1.49E-01	1.58E-01	2.05E-01	2.04E-01	2.03E-01
110.0	3.77E-01	6.95E-00	2.50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-01	1.54E-01	1.63E-01	2.10E-01	2.09E-01	2.08E-01
133.0	3.74E-01	6.49E-00	2.81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-01	1.59E-01	1.68E-01	2.15E-01	2.14E-01	2.13E-01
162.0	4.02E-01	4.10E-01	3.12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	1.64E-01	1.73E-01	2.21E-01	2.20E-01	2.19E-01
200.0	4.71E-01	4.16E-01	3.58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-01	1.69E-01	1.78E-01	2.26E-01	2.25E-01	2.24E-01
249.0	4.22E-01	4.27E-01	4.04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-01	1.74E-01	1.83E-01	2.31E-01	2.30E-01	2.29E-01
309.0	3.36E-01	4.78E-01	4.53	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-01	1.79E-01	1.88E-01	2.38E-01	2.37E-01	2.36E-01
313.0	3.98E-01	4.30E-01	5.13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-01	1.84E-01	1.93E-01	2.44E-01	2.43E-01	2.42E-01
397.0	3.86E-01	5.18E-01	5.79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-01	1.89E-01	1.98E-01	2.51E-01	2.50E-01	2.49E-01
400.0	7.26E-01	5.18E-01	6.53	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-01	1.94E-01	2.03E-01	2.56E-01	2.55E-01	2.54E-01
500.0	2.66E-01	5.05E-01	8.36	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-01	2.09E-01	2.18E-01	2.78E-01	2.77E-01	2.76E-01
502.0	2.61E-01	5.14E-01	8.34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-01	2.14E-01	2.23E-01	2.82E-01	2.81E-01	2.80E-01
600.0	2.02E-01	6.32E-01	9.32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-01	1.23E-01	1.32E-01	1.91E-01	1.90E-01	1.89E-01
700.0	1.99E-01	6.37E-01	10.66	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-01	1.28E-01	1.37E-01	1.96E-01	1.95E-01	1.94E-01
800.0	1.63E-01	7.55E-01	11.43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-01	1.33E-01	1.42E-01	1.99E-01	1.98E-01	1.97E-01
865.0	1.48E-01	7.11E-01	12.78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01	1.38E-01	1.47E-01	2.04E-01	2.03E-01	2.02E-01
900.0	1.19E-01	5.89E-01	13.08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-01	1.43E-01	1.52E-01	2.09E-01	2.08E-01	2.07E-01
1147.0	2.30E-01	4.93E-00	14.27	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-01	1.48E-01	1.57E-01	2.14E-01	2.13E-01	2.12E-01
1545.0	5.39E-00	3.20E+00	24.49	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-01	1.53E-01	1.62E-01	2.20E+00	2.19E+00	2.18E+00
2000.0	3.37E-00	2.21E+00	27.62	1.43E+00	1.43E+00	1.43E+00	1.43E+00	1.43E+00	1.55E+00	1.58E+00	1.67E+00	2.25E+00	2.25E+00	2.24E+00
2169.0	3.66E-00	2.34E+00	28.44	1.63E+00	1.63E+00	1.63E+00	1.63E+00	1.63E+00	1.74E+00	1.77E+00	1.86E+00	2.38E+00	2.38E+00	2.37E+00
2977.0	1.62E+00	1.33E+00	35.13	2.00E+00	2.03E+00	2.02E+00	2.02E+00	2.02E+00	2.14E+00	2.18E+00	2.20E+00	2.89E+00	2.89E+00	2.88E+00

**TABLE 10 A**

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: HE  
 MODEL = BARI; TIME = 1989.20; PERIOD = 1.8723  
 ATOMIC-NUM = 2; ATOMIC-W = 4.00;  
 43.0 Dg/1334-1334 KM

\*\*\*\*\*  
DIFFERENTIAL FLUX EMERGING PAST Spherical ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY/MEV/N)  
\*\*\*\*\*

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0
3.9E+62	2.29E+00	2.74E+00	2.36E+00	2.39E+00	2.37E+00	2.47E+00	2.47E+00	2.51E+00	2.88E+00	3.30E+00
4.1E+62	2.25E+00	2.74E+00	2.65E+00	2.65E+00	2.75E+00	2.67E+00	2.68E+00	3.17E+00	3.36E+00	3.65E+00
5.0E+62	2.44E+00	2.93E+00	3.03E+00	3.03E+00	3.06E+00	3.18E+00	3.11E+00	3.25E+00	3.84E+00	3.86E+00
5.6E+62	2.39E+00	2.73E+00	2.65E+00	2.65E+00	2.66E+00	3.06E+00	3.06E+00	3.85E+00	4.13E+00	4.41E+00
6.4E+62	2.37E+00	2.77E+00	4.14E+00	4.14E+00	4.14E+00	4.14E+00	4.21E+00	4.28E+00	4.65E+00	4.77E+00
7.2E+62	2.31E+00	4.29E+00	9.44E+00	9.44E+00	9.48E+00	9.48E+00	9.48E+00	9.48E+00	9.03E+00	9.05E+00
8.1E+62	2.11E+00	4.21E+00	5.44E+00	5.44E+00	5.45E+00	5.50E+00	5.38E+00	5.61E+00	5.64E+00	5.97E+00
9.1E+62	2.51E+00	5.23E+00	6.00E+00	6.00E+00	5.92E+00	5.92E+00	6.05E+00	6.12E+00	6.20E+00	6.33E+00
10.3E+62	5.81E+00	6.97E+00	7.00E+00	7.00E+00	6.88E+00	6.88E+00	6.86E+00	6.99E+00	7.27E+00	7.51E+00
11.6E+62	7.25E+00	7.94E+00	7.46E+00	7.46E+00	7.50E+00	7.61E+00	7.59E+00	7.64E+00	7.71E+00	8.02E+00
13.1E+62	6.11E+00	8.19E+00	8.26E+00	8.26E+00	8.44E+00	8.47E+00	8.52E+00	8.54E+00	8.71E+00	8.83E+00
14.9E+62	6.94E+00	9.18E+00	9.29E+00	9.29E+00	9.37E+00	9.44E+00	9.49E+00	9.43E+00	9.38E+00	9.40E+00
16.7E+62	9.33E+00	9.05E+00	9.86E+00	9.86E+00	9.92E+00	9.98E+00	1.00E+01	1.00E+01	1.04E+01	1.04E+01
18.9E+62	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.10E+01	1.10E+01	1.11E+01	1.11E+01	1.11E+01	1.09E+01
21.3E+62	1.17E+01	1.17E+01	1.18E+01	1.18E+01	1.19E+01	1.19E+01	1.19E+01	1.19E+01	1.19E+01	1.15E+01
24.0E+62	1.20E+01	1.20E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.20E+01	1.16E+01
27.1E+62	1.23E+01	1.24E+01	1.20E+01							
30.5E+62	1.25E+01	1.20E+01								
34.4E+62	1.21E+01	1.20E+01								
38.9E+62	1.15E+01									
43.8E+62	1.19E+01									
49.4E+62	1.09E+01									
55.7E+62	9.44E+00									
62.8E+62	8.55E+00									
70.9E+62	9.44E+00									
79.9E+62	7.25E+00									
90.4E+62	4.37E+00									
101.6E+62	4.65E+00									
129.3E+62	3.08E+00									
145.9E+62	3.08E+00									
154.4E+62	2.05E+00									
185.1E+62	2.44E+00									
209.1E+62	2.05E+00									
235.8E+62	1.77E+00									
266.0E+62	1.47E+00									

TABLE 10B

ORIGINAL PAGE 19  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: LI  
MODEL = BARRI TIME: 1994-10-01 C-RW= 6723  
LAT/IC-NUM= 33.0 DEG43.4-134.4 KM= 6.94

MAGNETOSPHERICALLY  
ATTEN-  
UATED

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>22</sup>/DAY/MEV)

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12	3.53E-02	2.86E-03	0.20	0.00E+00										
14	3.28E-02	2.65E-03	0.22	0.00E+00										
16	3.03E-02	2.50E-03	0.25	0.00E+00										
18	2.80E-02	2.35E-03	0.29	0.00E+00										
20	2.59E-02	2.20E-03	0.33	0.00E+00										
23	2.08E-02	1.80E-03	0.40	0.00E+00										
26	4.69E-02	5.24E-03	0.41	0.00E+00										
30	5.34E-02	6.12E-03	0.45	0.00E+00										
34	6.05E-02	7.31E-03	0.52	0.00E+00										
40	7.12E-02	9.30E-03	0.59	0.00E+00										
46	8.92E-02	1.11E-02	0.67	0.00E+00										
50	8.61E-02	1.22E-02	0.75	0.00E+00										
54	9.16E-02	1.34E-02	0.85	0.00E+00										
60	9.98E-02	1.51E-02	0.95	0.00E+00										
64	1.05E-01	1.62E-02	1.08	0.00E+00										
70	1.14E-01	1.63E-02	1.21	0.00E+00										
76	1.20E-01	2.04E-02	1.37	0.00E+00										
80	1.25E-01	2.15E-02	1.54	0.00E+00										
90	1.31E-01	2.43E-02	1.74	0.00E+00										
91	1.36E-01	2.46E-02	1.96	0.00E+00										
100	1.38E-01	2.65E-02	2.21	0.00E+00										
109	1.42E-01	2.85E-02	2.50	0.00E+00										
123	1.53E-01	3.48E-02	2.91	0.00E+00										
162	1.65E-01	4.11E-02	3.18	0.00E+00										
200	1.78E-01	4.75E-02	3.58	0.00E+00										
249	1.83E-01	5.21E-02	4.04	0.00E+00										
309	1.92E-01	5.32E-02	4.55	0.00E+00										
397	1.54E-01	6.97E-02	5.73	0.00E+00										
400	1.24E-01	4.95E-02	6.45	0.00E+00										
509	1.09E-01	4.31E-02	7.26	0.00E+00										
600	9.02E-02	7.63E-02	8.36	0.00E+00										
660	8.24E-02	7.59E-02	10.56	0.00E+00										
700	7.79E-02	7.43E-02	11.0E-02	1.13E-02	1.74E-02	2.45E-02	3.25E-02	4.24E-02	5.25E-02	6.25E-02	7.25E-02	8.25E-02	9.25E-02	1.02E-01
800	6.68E-02	7.10E-02	1.21E-02	1.51E-02	2.17E-02	2.65E-02	3.21E-02	3.80E-02	4.36E-02	4.91E-02	5.46E-02	5.91E-02	6.36E-02	6.71E-02
865	6.07E-02	7.91E-02	1.27E-02	1.57E-02	2.23E-02	2.80E-02	3.36E-02	3.93E-02	4.50E-02	5.07E-02	5.64E-02	6.21E-02	6.78E-02	7.35E-02
900	5.79E-02	2.77E-02	1.7E-02	1.92E-02	2.58E-02	3.24E-02	3.80E-02	4.36E-02	4.92E-02	5.48E-02	5.95E-02	6.42E-02	6.89E-02	7.36E-02
1000	4.79E-02	2.41E-02	1.92E-02	1.92E-02	2.58E-02	3.14E-02	3.78E-02	4.36E-02	4.92E-02	5.48E-02	5.95E-02	6.42E-02	6.89E-02	7.36E-02
1147	3.81E-02	2.02E-02	2.11E-02	2.17E-02	2.49E-02	3.14E-02	3.78E-02	4.36E-02	4.92E-02	5.48E-02	5.95E-02	6.42E-02	6.89E-02	7.36E-02
1547	2.21E-02	1.31E-02	2.44E-02	2.47E-02	2.49E-02	3.14E-02	3.78E-02	4.36E-02	4.92E-02	5.48E-02	5.95E-02	6.42E-02	6.89E-02	7.36E-02
2000	1.38E-02	0.07E-02	2.67E-02	2.67E-02	2.67E-02	3.14E-02	3.78E-02	4.36E-02	4.92E-02	5.48E-02	5.95E-02	6.42E-02	6.89E-02	7.36E-02
2129	1.24E-02	6.35E-03	3.11E-03											
2977	6.65E-03	5.44E-03	35.13	8.21E-03										

TABLE 11A

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) EDR: LI  
MODEL: BARNETT 1994.201; FER T0D = 1.8723  
(ATOMIC NUMBER = 6.0 DEG 13.34 KM)

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CMS<sup>-2</sup>DAY/NEV/N) \*\*\*\*\*

	SHIELD THICKNESS (GM/CM <sup>2</sup> )	0.01	0.03	0.05	0.07	0.10	0.15	0.30	0.50	1.0	3.0	5.0	10.0
39.62	9.46E-03	9.65E-02	9.72E-03	9.80E-03	9.56E-03	1.01E-02	1.04E-02	1.08E-02	1.41E-02	1.29E-02	1.22E-02	1.15E-02	1.08E-02
44.63	1.05E-02	1.09E-02	1.12E-02	1.09E-02	1.10E-02	1.15E-02	1.16E-02	1.18E-02	1.39E-02	1.32E-02	1.22E-02	1.16E-02	1.05E-02
50.39	1.22E-02	1.29E-02	1.26E-02	1.26E-02	1.24E-02	1.26E-02	1.29E-02	1.29E-02	1.37E-02	1.37E-02	1.32E-02	1.25E-02	1.15E-02
56.82	1.45E-02	1.42E-02	1.45E-02	1.42E-02	1.49E-02	1.49E-02	1.49E-02	1.49E-02	1.53E-02	1.53E-02	1.52E-02	1.45E-02	1.34E-02
62.44	1.71E-02	1.67E-02	1.63E-02	1.63E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.75E-02	1.75E-02	1.72E-02	1.66E-02	1.54E-02
72.12	2.06E-02	2.02E-02	2.07E-02	2.07E-02	2.05E-02	2.02E-02	1.94E-02						
91.84	2.40E-02	2.34E-02	2.34E-02	2.34E-02	2.34E-02	2.45E-02	2.45E-02	2.45E-02	2.49E-02	2.49E-02	2.48E-02	2.45E-02	2.35E-02
103.63	2.82E-02	2.85E-02	2.85E-02	2.85E-02	2.85E-02	2.95E-02	2.95E-02	2.95E-02	2.83E-02	2.83E-02	2.87E-02	2.83E-02	2.70E-02
116.86	3.57E-02	3.51E-02	3.51E-02	3.51E-02	3.51E-02	3.66E-02	3.66E-02	3.66E-02	3.12E-02	3.12E-02	3.12E-02	3.12E-02	3.02E-02
134.79	4.34E-02	4.43E-02	4.43E-02	4.43E-02	4.43E-02	4.46E-02	4.46E-02	4.46E-02	3.15E-02	3.15E-02	3.15E-02	3.15E-02	3.06E-02
148.62	5.22E-02	5.72E-02	5.78E-02	5.78E-02	5.78E-02	5.82E-02	5.82E-02	5.82E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.56E-02
167.60	6.25E-02	6.02E-02	6.02E-02	6.02E-02	6.02E-02	6.04E-02	6.04E-02	6.04E-02	4.09E-02	4.09E-02	4.12E-02	4.12E-02	3.94E-02
189.01	4.42E-02	4.42E-02	4.47E-02	4.49E-02	4.51E-02	4.51E-02	4.51E-02	4.51E-02	4.51E-02	4.51E-02	4.54E-02	4.54E-02	4.47E-02
213.15	4.75E-02	4.80E-02	4.83E-02	4.85E-02	4.85E-02	4.97E-02	4.97E-02	4.97E-02	4.78E-02	4.78E-02	4.80E-02	4.76E-02	4.73E-02
240.38	4.54E-02	4.96E-02	4.97E-02	4.97E-02	4.97E-02	5.08E-02	5.08E-02	5.08E-02	4.95E-02	4.95E-02	4.96E-02	4.96E-02	4.71E-02
271.08	5.06E-02	5.07E-02	5.07E-02	5.07E-02	5.11E-02	5.11E-02	5.11E-02	5.11E-02	5.10E-02	5.10E-02	5.04E-02	5.04E-02	4.75E-02
305.70	5.12E-02	5.12E-02	5.12E-02	5.12E-02	5.12E-02	5.12E-02	5.12E-02	5.12E-02	5.10E-02	5.10E-02	5.05E-02	5.05E-02	4.97E-02
344.74	4.97E-02	4.97E-02	4.97E-02	4.97E-02	4.97E-02	4.92E-02	4.92E-02	4.92E-02	4.86E-02	4.86E-02	4.92E-02	4.92E-02	4.82E-02
388.77	7.1E-02	7.1E-02	7.1E-02	7.1E-02	7.1E-02	7.1E-02	7.1E-02	7.1E-02	6.7E-02	6.7E-02	6.7E-02	6.7E-02	6.36E-02
439.43	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.12E-02
494.42	4.22E-02	4.20E-02	4.17E-02	4.14E-02	4.14E-02	4.14E-02	4.14E-02	4.14E-02	4.09E-02	4.09E-02	4.09E-02	4.09E-02	4.12E-02
557.97	3.9E-02	3.89E-02	3.89E-02	3.89E-02	3.89E-02	3.87E-02	3.87E-02	3.87E-02	3.81E-02	3.81E-02	3.81E-02	3.81E-02	3.71E-02
626.79	3.63E-02	3.60E-02	3.51E-02	3.51E-02	3.51E-02	3.51E-02	3.51E-02	3.51E-02	3.50E-02	3.50E-02	3.49E-02	3.49E-02	3.39E-02
709.09	3.34E-02	3.29E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.24E-02	3.24E-02	3.24E-02	3.24E-02	3.14E-02
785.96	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	3.02E-02	2.94E-02
861.74	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.75E-02	2.65E-02
917.00	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.47E-02
1017.00	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.07E-02
1166.99	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.78E-02
1293.30	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.52E-02
1458.50	1.41E-02	1.39E-02	1.38E-02	1.38E-02	1.38E-02	1.38E-02	1.26E-02						
1644.80	1.15E-02	1.08E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02
1854.99	1.00E-02	9.88E-03	9.76E-03	9.65E-03	9.52E-03	9.42E-03	9.32E-03	9.22E-03	9.12E-03	9.02E-03	8.92E-03	8.82E-03	8.72E-03
2091.89	8.48E-03	8.42E-03	8.39E-03	8.35E-03	8.31E-03	8.27E-03	8.23E-03	8.19E-03	8.15E-03	8.11E-03	8.07E-03	8.03E-03	7.97E-03
2349.93	7.24E-03	7.22E-03	7.19E-03	7.15E-03	7.11E-03	7.07E-03	7.03E-03	6.99E-03	6.95E-03	6.91E-03	6.87E-03	6.83E-03	6.79E-03
2660.20	6.04E-03	6.00E-03	5.95E-03	5.90E-03	5.85E-03	5.80E-03	5.75E-03	5.70E-03	5.65E-03	5.60E-03	5.55E-03	5.50E-03	5.23E-03

TABLE 118



ORIGINAL PAGE IS  
OF POOR QUALITY

TOPFX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: AE  
MODEL = BARKI; TIME= 1989.2.0; PERIOD= 1.8723  
(ATOMIC-NUM= 4; ATOMIC-WE= 9.01)  
63.0 DEG/1334-4334 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N)

SHIELD THICKNESS (CM/CM <sup>2</sup> )	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.9*62	5.12E-03	5.20E-03	5.12E-03	5.19E-03	5.15E-03	5.49E-03	5.57E-03	5.78E-03	6.80E-03	6.92E-03	7.67E-03
4.4*68	5.67E-03	5.91E-03	5.67E-03	5.96E-03	5.66E-03	6.26E-03	6.22E-03	6.25E-03	6.66E-03	6.66E-03	6.12E-03
5.0*38	6.57E-03	6.98E-03	6.73E-03	7.78E-03	7.04E-03	7.26E-03	7.36E-03	7.66E-03	8.05E-03	8.05E-03	8.05E-03
5.6*37	7.84E-03	8.04E-03	6.12E-03	9.16E-03	9.16E-03	8.77E-03	8.77E-03	9.05E-03	9.05E-03	9.05E-03	9.05E-03
6.1*26	1.02E-02	1.07E-02	1.07E-02	1.08E-02	1.08E-02	1.19E-02	1.19E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02
6.7*26	1.17E-02	1.19E-02	1.19E-02	1.20E-02	1.20E-02	1.21E-02	1.21E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02
7.1*49	1.30E-02	1.31E-02	1.31E-02	1.32E-02	1.32E-02	1.33E-02	1.33E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02
7.5*63	1.52E-02	1.53E-02	1.52E-02								
8.1*66	1.60E-02	1.66E-02									
8.5*79	1.79E-02	1.81E-02									
14.4*62	2.00E-02	2.14E-02	2.14E-02	2.17E-02	2.18E-02						
16.7*60	2.14E-02	2.16E-02	2.16E-02	2.17E-02	2.18E-02						
18.9*0	2.37E-02	2.41E-02	2.41E-02	2.41E-02	2.41E-02	2.42E-02	2.42E-02	2.43E-02	2.43E-02	2.43E-02	2.43E-02
21.2*15	2.55E-02	2.58E-02	2.58E-02	2.61E-02	2.61E-02	2.64E-02	2.64E-02	2.65E-02	2.65E-02	2.65E-02	2.65E-02
24.0*38	2.65E-02	2.66E-02	2.66E-02	2.67E-02	2.67E-02	2.68E-02	2.68E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02
27.7*08	2.75E-02	2.77E-02	2.77E-02	2.78E-02	2.78E-02	2.79E-02	2.79E-02	2.79E-02	2.79E-02	2.79E-02	2.79E-02
30.5*70	2.77E-02										
34.4*74	2.77L-02	2.77E-02									
38.8*77	2.53E-02	2.52E-02									
43.8*43	2.50E-02	2.39E-02	2.39E-02	2.36E-02	2.36E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02
49.4*42	2.26E-02	2.25E-02									
55.7*57	2.10E-02	2.09E-02	2.09E-02	2.07E-02	2.06E-02	2.05E-02	2.05E-02	2.05E-02	2.05E-02	2.05E-02	2.05E-02
62.6*75	1.95E-02										
70.9*59	1.77E-02										
74.9*66	1.63E-02	1.64E-02									
60.1*74	1.44E-02										
101.4*0	1.05E-02										
111.4*9	8.95E-03	9.85E-03	9.74E-03								
143.3*59	7.55E-03	6.55E-03	6.37E-03	6.37E-03	6.37E-03	6.26E-03	6.21E-03	6.16E-03	6.11E-03	6.05E-03	5.95E-03
164.1*80	6.37E-03	5.37E-03	4.55E-03	4.55E-03	4.55E-03	4.23E-03	4.21E-03	4.16E-03	4.11E-03	4.04E-03	3.94E-03
185.1*9	4.55E-03	4.55E-03	4.55E-03	4.47E-03	4.47E-03	4.45E-03	4.43E-03	4.41E-03	4.39E-03	3.86E-03	3.86E-03
235.4*59	2.85E-03	3.87E-03	3.22E-03	3.22E-03	3.22E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03
266.0*20	2.24E-03	3.22E-03	2.24E-03								

TABLE 12B

ORIGINAL PAGE IS  
OF POOR QUALITY

TCPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: B  
 MODEL= BAPR; TIME= 1989-20; PERIOD= 1-8723  
 ATOMIC-NAME: 5; ATOMIC-NUM: 10-02;

6-3-0 DEG/1330-1330 NM

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N) \*\*\*\*\*

MAGNETOSPHERICALLY ATTEN- UNATTEN- ENERGY 0.01 0.03 0.05 0.07 0.10 0.13 0.20 0.30 0.50 1.0 3.0 5.0 10.0

EN-	UNATTEN-	ATTEN-	ENERGY	0.01	0.03	0.05	0.07	0.10	0.13	0.20	0.30	0.50	1.0	3.0	5.0	10.0
12	5.93E-02	4.82E-03	0.20	0.00E+00	1.15E-04	1.98E-03	1.98E-03	2.23E-03								
14	5.52E-02	4.79E-03	0.23	0.00E+00	1.15E-04	1.98E-03	1.98E-03	2.21E-03								
16	5.55E-02	5.06E-03	0.25	0.00E+00	1.04E-04	1.87E-03	1.87E-03	2.11E-03								
18	5.66E-02	5.38E-03	0.29	0.00E+00	9.98E-04	1.76E-03	1.76E-03	2.01E-03								
20	6.22E-02	6.30E-03	0.32	0.00E+00	9.77E-04	1.68E-03	1.68E-03	1.92E-03								
23	7.06E-02	7.41E-03	0.36	0.00E+00	9.68E-04	1.65E-03	1.65E-03	1.89E-03								
26	7.89E-02	8.82E-03	0.41	0.00E+00	9.58E-04	1.65E-03	1.65E-03	1.88E-03								
30	8.55E-02	1.23E-02	0.46	0.00E+00	9.58E-04	1.65E-03	1.65E-03	1.88E-03								
34	1.02E-01	1.23E-02	0.52	0.00E+00	9.52E-04	1.63E-03	1.63E-03	1.86E-03								
40	1.20E-01	1.57E-02	0.59	0.00E+00	9.42E-04	1.62E-03	1.62E-03	1.85E-03								
46	1.39E-01	1.97E-02	0.67	0.00E+00	9.34E-04	1.60E-03	1.60E-03	1.84E-03								
50	1.44E-01	2.06E-02	0.75	0.00E+00	9.26E-04	1.59E-03	1.59E-03	1.83E-03								
54	1.54E-01	2.25E-02	0.85	0.00E+00	9.17E-04	1.58E-03	1.58E-03	1.82E-03								
60	1.68E-01	2.44E-02	0.95	0.00E+00	9.07E-04	1.57E-03	1.57E-03	1.81E-03								
70	1.91E-01	2.73E-02	1.05	0.00E+00	8.97E-04	1.56E-03	1.56E-03	1.80E-03								
76	2.15E-01	3.14E-02	1.14	0.00E+00	8.87E-04	1.55E-03	1.55E-03	1.79E-03								
86	2.41E-01	3.62E-02	1.25	0.00E+00	8.77E-04	1.54E-03	1.54E-03	1.78E-03								
99	2.21E-01	4.09E-02	1.37	0.00E+00	8.67E-04	1.53E-03	1.53E-03	1.77E-03								
91	2.22E-01	4.13E-02	1.46	0.00E+00	8.57E-04	1.52E-03	1.52E-03	1.76E-03								
100	2.32E-01	4.47E-02	1.66	0.00E+00	8.47E-04	1.51E-03	1.51E-03	1.75E-03								
109	2.44E-01	4.79E-02	1.86	0.00E+00	8.37E-04	1.50E-03	1.50E-03	1.74E-03								
133	2.55E-01	5.89E-02	2.05	0.00E+00	8.27E-04	1.49E-03	1.49E-03	1.73E-03								
162	2.77E-01	6.94E-02	2.24	0.00E+00	8.17E-04	1.48E-03	1.48E-03	1.72E-03								
200	3.00E-01	7.99E-02	2.43	0.00E+00	8.07E-04	1.47E-03	1.47E-03	1.71E-03								
249	2.91E-01	8.76E-02	2.64	0.00E+00	7.97E-04	1.46E-03	1.46E-03	1.70E-03								
390	2.75E-01	8.95E-02	2.95	0.00E+00	7.87E-04	1.45E-03	1.45E-03	1.69E-03								
313	2.75E-01	8.99E-02	3.15	0.00E+00	7.77E-04	1.44E-03	1.44E-03	1.68E-03								
397	2.66E-01	8.26E-02	3.47	0.00E+00	7.67E-04	1.43E-03	1.43E-03	1.67E-03								
605	2.25E-01	6.16E-02	6.53	0.00E+00	3.78E-04	1.42E-03	1.42E-03	1.66E-03								
505	1.84E-01	2.5E-02	7.36	0.00E+00	3.34E-04	1.41E-03	1.41E-03	1.65E-03								
600	1.52E-01	6.44E-02	9.36	0.00E+00	5.98E-04	1.40E-03	1.40E-03	1.64E-03								
660	1.37E-01	6.05E-02	10.56	0.00E+00	5.20E-04	1.39E-03	1.39E-03	1.63E-03								
690	1.37E-01	5.76E-02	11.94	0.00E+00	4.66E-04	1.38E-03	1.38E-03	1.62E-03								
800	1.14E-01	5.21E-02	13.43	0.00E+00	4.15E-04	1.37E-03	1.37E-03	1.61E-03								
605	9.32E-02	4.90E-02	15.15	0.00E+00	3.65E-04	1.36E-03	1.36E-03	1.60E-03								
505	1.84E-02	4.66E-02	19.26	0.00E+00	2.95E-04	1.35E-03	1.35E-03	1.59E-03								
1545	3.77E-02	3.42E-02	21.42	0.00E+00	2.43E-04	1.34E-03	1.34E-03	1.58E-03								
2000	2.35E-02	2.15E-02	22.72	0.00E+00	1.92E-04	1.33E-03	1.33E-03	1.57E-03								
2477	2.04E-02	1.49E-02	24.02	0.00E+00	1.49E-04	1.32E-03	1.32E-03	1.56E-03								
2977	1.12E-02	1.15E-03	35.13	0.00E+00	1.49E-02	1.31E-02	1.31E-02	2.04E-02								

TABLE 13 A

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: A  
MODEL: BARD; TIME: 1989.2+0; PERIOD: 1.8723  
(ATOMIC-NUM: 5; ATOMIC-WE: 10.42)  
63.0 Deg/1.34-1.334 Km

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY\*EV/N)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.62	1.61E-02	1.64E-02	1.64E-02	1.64E-02	1.64E-02	1.64E-02	1.64E-02	1.72E-02	1.78E-02	1.87E-02	2.39E-02
44.68	1.78E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.94E-02	1.94E-02	1.94E-02	2.48E-02
50.38	2.06E-02	2.14E-02	2.14E-02	2.14E-02	2.14E-02	2.14E-02	2.14E-02	2.34E-02	2.34E-02	2.34E-02	2.99E-02
56.82	2.48E-02	2.53E-02	2.49E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.56E-02	2.56E-02	2.56E-02	3.28E-02
64.37	2.80E-02	2.89E-02	2.85E-02	2.89E-02	2.89E-02	2.89E-02	2.89E-02	3.01E-02	3.01E-02	3.01E-02	3.77E-02
72.26	3.23E-02	3.35E-02	3.23E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.54E-02	3.54E-02	3.54E-02	4.35E-02
81.49	3.64E-02	3.76E-02	3.79E-02	3.76E-02	3.79E-02	3.76E-02	3.79E-02	3.96E-02	3.96E-02	3.96E-02	4.84E-02
91.89	4.07E-02	4.11E-02	4.13E-02	4.11E-02	4.13E-02	4.11E-02	4.13E-02	4.21E-02	4.21E-02	4.21E-02	5.04E-02
103.63	4.80E-02	4.82E-02	4.82E-02	4.82E-02	4.82E-02	4.82E-02	4.82E-02	4.93E-02	4.93E-02	4.93E-02	5.73E-02
116.96	5.06E-02	5.16E-02	5.16E-02	5.16E-02	5.16E-02	5.16E-02	5.16E-02	5.29E-02	5.29E-02	5.29E-02	6.02E-02
133.79	5.61E-02	5.68E-02	5.68E-02	5.68E-02	5.68E-02	5.68E-02	5.68E-02	5.91E-02	5.91E-02	5.91E-02	6.64E-02
144.60	6.28E-02	6.41E-02	6.41E-02	6.41E-02	6.41E-02	6.41E-02	6.41E-02	6.54E-02	6.54E-02	6.54E-02	7.27E-02
164.02	6.94E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	7.16E-02	7.16E-02	7.16E-02	7.86E-02
184.05	8.44E-02	8.52E-02	8.52E-02	8.52E-02	8.52E-02	8.52E-02	8.52E-02	8.65E-02	8.65E-02	8.65E-02	9.35E-02
214.23	9.02E-02	9.12E-02	9.12E-02	9.12E-02	9.12E-02	9.12E-02	9.12E-02	9.24E-02	9.24E-02	9.24E-02	9.74E-02
272.39	8.52E-02	8.56E-02	8.56E-02	8.56E-02	8.56E-02	8.56E-02	8.56E-02	8.59E-02	8.59E-02	8.59E-02	8.93E-02
327.20	8.62E-02	8.65E-02	8.65E-02	8.65E-02	8.65E-02	8.65E-02	8.65E-02	8.68E-02	8.68E-02	8.68E-02	9.07E-02
349.74	6.33E-02	6.37E-02	6.37E-02	6.37E-02	6.37E-02	6.37E-02	6.37E-02	6.42E-02	6.42E-02	6.42E-02	7.39E-02
389.77	7.54E-02	7.62E-02	7.62E-02	7.62E-02	7.62E-02	7.62E-02	7.62E-02	7.80E-02	7.80E-02	7.80E-02	8.66E-02
438.43	7.52E-02	7.48E-02	7.48E-02	7.48E-02	7.48E-02	7.48E-02	7.48E-02	7.37E-02	7.37E-02	7.37E-02	7.97E-02
494.42	7.10E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	7.05E-02	6.89E-02	6.89E-02	6.89E-02	7.51E-02
557.57	6.58E-02	6.51E-02	6.51E-02	6.51E-02	6.51E-02	6.51E-02	6.51E-02	6.44E-02	6.44E-02	6.44E-02	7.14E-02
628.79	6.13E-02	6.04E-02	6.04E-02	6.04E-02	6.04E-02	6.04E-02	6.04E-02	5.94E-02	5.94E-02	5.94E-02	6.53E-02
704.05	5.61E-02	5.54E-02	5.54E-02	5.54E-02	5.54E-02	5.54E-02	5.54E-02	5.47E-02	5.47E-02	5.47E-02	6.02E-02
799.66	5.10E-02	5.07E-02	5.07E-02	5.07E-02	5.07E-02	5.07E-02	5.07E-02	5.05E-02	5.05E-02	5.05E-02	5.51E-02
901.79	4.53E-02	4.47E-02	4.47E-02	4.47E-02	4.47E-02	4.47E-02	4.47E-02	4.36E-02	4.36E-02	4.36E-02	4.86E-02
1017.00	3.90E-02	3.83E-02	3.83E-02	3.83E-02	3.83E-02	3.83E-02	3.83E-02	3.76E-02	3.76E-02	3.76E-02	4.35E-02
1146.50	3.32E-02	3.25E-02	3.25E-02	3.25E-02	3.25E-02	3.25E-02	3.25E-02	3.21E-02	3.21E-02	3.21E-02	3.98E-02
1247.30	2.80E-02	2.76E-02	2.76E-02	2.76E-02	2.76E-02	2.76E-02	2.76E-02	2.65E-02	2.65E-02	2.65E-02	3.06E-02
1454.50	2.36E-02	2.33E-02	2.33E-02	2.33E-02	2.33E-02	2.33E-02	2.33E-02	2.25E-02	2.25E-02	2.25E-02	2.48E-02
1644.80	2.00E-02	1.93E-02	1.93E-02	1.93E-02	1.93E-02	1.93E-02	1.93E-02	1.97E-02	1.97E-02	1.97E-02	2.14E-02
1855.90	1.68E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.65E-02	1.65E-02	1.65E-02	1.85E-02
2044.80	1.33E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.19E-02	1.19E-02	1.19E-02	1.55E-02
2366.94	1.02E-02	9.67E-03	9.67E-03	9.67E-03	1.05E-02						
2660.20	1.02E-02	9.90E-03	9.90E-03	9.90E-03	1.03E-02						

TABLE 13B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: C  
MODEL = BARRI TIME 1959.2.01 PERIOD= 1. 8723  
(ATOMIC-C-NUCLEUS) 6 ATOMIC-W = 12.01  
63.0 DEG/133.0-133.0 NM

MAGNETOSPHERICALLY ATTEN- DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/SEC\*\*2/2DAY\*MEV/N)

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	SHIELD THICKNESS (1/ $\mu$ CM**2)							
				0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0
1.2	2.15E-01	1.75E-02	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4	2.06E-01	1.93E-02	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.6	2.05E-01	1.95E-02	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.8	2.05E-01	1.95E-02	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.0	2.25E-01	2.29E-02	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.2	2.55E-01	2.68E-02	0.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.4	2.86E-01	3.20E-02	0.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.6	3.26E-01	3.73E-02	0.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.8	3.65E-01	4.44E-02	0.52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.0	4.34E-01	5.67E-02	0.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2	4.85E-01	6.75E-02	0.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.4	5.25E-01	7.47E-02	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.6	5.55E-01	8.15E-02	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.8	5.90E-01	9.20E-02	0.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.0	6.09E-01	9.90E-02	1.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.2	6.42E-01	1.11E-01	1.24E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.4	6.94E-01	1.31E-01	1.37E-01	1.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.6	7.60E-01	1.48E-01	1.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.8	8.05E-01	1.50E-01	1.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	8.41E-01	1.62E-01	2.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.2	8.41E-01	1.74E-01	2.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.4	8.34E-01	2.12E-01	2.81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.6	1.09E-01	2.50E-01	3.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.8	1.09E-01	2.90E-01	3.47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.0	1.09E-01	3.18E-01	3.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.2	1.09E-01	3.48E-01	4.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.4	1.09E-01	3.84E-01	4.45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.6	1.09E-01	4.20E-01	5.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.8	1.09E-01	4.76E-01	5.79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	1.09E-01	5.26E-01	6.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.2	1.09E-01	5.76E-01	6.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.4	1.09E-01	6.26E-01	7.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.6	1.09E-01	6.76E-01	7.93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.8	1.09E-01	7.26E-01	8.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.0	1.09E-01	7.76E-01	8.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.2	1.09E-01	8.26E-01	9.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.4	1.09E-01	8.76E-01	9.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.6	1.09E-01	9.26E-01	9.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.8	1.09E-01	9.76E-01	10.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.0	1.09E-01	1.026E-01	10.61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.2	1.09E-01	1.076E-01	11.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.4	1.09E-01	1.126E-01	11.37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.6	1.09E-01	1.176E-01	11.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.8	1.09E-01	1.226E-01	12.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	1.09E-01	1.276E-01	12.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.2	1.09E-01	1.326E-01	12.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.4	1.09E-01	1.376E-01	13.22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.6	1.09E-01	1.426E-01	13.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.8	1.09E-01	1.476E-01	13.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.0	1.09E-01	1.526E-01	14.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.2	1.09E-01	1.576E-01	14.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.4	1.09E-01	1.626E-01	15.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.6	1.09E-01	1.676E-01	15.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.8	1.09E-01	1.726E-01	15.81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.0	1.09E-01	1.776E-01	16.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.2	1.09E-01	1.826E-01	16.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.4	1.09E-01	1.876E-01	16.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.6	1.09E-01	1.926E-01	17.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.8	1.09E-01	1.976E-01	17.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.0	1.09E-01	2.026E-01	18.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.2	1.09E-01	2.076E-01	18.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.4	1.09E-01	2.126E-01	18.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.6	1.09E-01	2.176E-01	19.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.8	1.09E-01	2.226E-01	19.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	1.09E-01	2.276E-01	19.88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.2	1.09E-01	2.326E-01	20.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.4	1.09E-01	2.376E-01	20.62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.6	1.09E-01	2.426E-01	20.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.8	1.09E-01	2.476E-01	21.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	1.09E-01	2.526E-01	21.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.2	1.09E-01	2.576E-01	22.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.4	1.09E-01	2.626E-01	22.47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.6	1.09E-01	2.676E-01	22.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.8	1.09E-01	2.726E-01	23.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.0	1.09E-01	2.776E-01	23.58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.2	1.09E-01	2.826E-01	23.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.4	1.09E-01	2.876E-01	24.32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.6	1.09E-01	2.926E-01	24.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.8	1.09E-01	2.976E-01	25.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.0	1.09E-01	3.026E-01	25.43	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.2	1.09E-01	3.076E-01	25.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.4	1.09E-01	3.126E-01	26.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.6	1.09E-01	3.176E-01	26.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.8	1.09E-01	3.226E-01	26.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.0	1.09E-01	3.276E-01	27.28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.2	1.09E-01	3.326E-01	27.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.4	1.09E-01	3.376E-01	28.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.6	1.09E-01	3.426E-01	28.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.8	1.09E-01	3.476E-01	28.76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.0	1.09E-01	3.526E-01	29.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.2	1.09E-01	3.576E-01	29.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.4	1.09E-01	3.626E-01	29.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.6	1.09E-01	3.676E-01	30.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.8	1.09E-01	3.726E-01	30.61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	1.09E-01	3.776E-01	30.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.2	1.09E-01	3.826E-01	31.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.4											

ORIGINAL PAGE IS  
OF POOR QUALITY

TRIPLEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: C  
 MODEL = BARRI TIME = 1987-2-01 PERIOD = 10723  
 LAT/DEC = 61.4 TO 12.311  
 63.0 DEG/1334-1334 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY-MEV/N)

ENERGY	SHIELD THICKNESS (GM/CM <sup>2</sup> )										
	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.94E-02	5.85E-02	5.97E-02	5.88E-02	5.91E-02	6.04E-02	6.14E-02	6.49E-02	7.21E-02	7.89E-02	8.49E-02	8.87E-02
4.46E-02	6.52E-02	6.71E-02	6.72E-02	6.61E-02	6.7E-02	6.72E-02	6.72E-02	6.93E-02	8.69E-02	9.24E-02	9.62E-02
5.03E-02	7.65E-02	7.74E-02	7.83E-02	7.97E-02	8.10E-02	8.12E-02	9.08E-02	9.89E-02	1.04E-02	1.07E-02	1.07E-02
5.63E-02	9.10E-02	9.10E-02	9.06E-02	9.03E-02	9.03E-02	9.11E-02	9.03E-02	9.03E-02	1.09E-01	1.19E-01	1.20E-01
6.40E-02	1.03E-01	1.04E-01	1.04E-01	1.05E-01	1.05E-01	1.06E-01	1.11E-01	1.11E-01	1.16E-01	1.19E-01	1.21E-01
7.22E-02	1.16E-01	1.22E-01	1.22E-01	1.33E-01	1.23E-01	1.44E-01	1.45E-01	1.45E-01	1.26E-01	1.37E-01	1.45E-01
8.14E-02	1.33E-01	1.38E-01									
9.11E-02	1.48E-01	1.49E-01	1.49E-01	1.51E-01	1.51E-01	1.52E-01	1.55E-01	1.55E-01	1.66E-01	1.69E-01	1.69E-01
1.03E-02	1.64E-01	1.65E-01									
1.16E-02	1.83E-01	1.90E-01	1.91E-01								
1.34E-02	2.04E-01	2.16E-01									
1.48E-02	2.26E-01	2.35E-01	2.35E-01	2.36E-01							
1.60E-02	2.47E-01	2.56E-01									
1.69E-02	2.61E-01	2.70E-01									
2.43E-02	3.02E-01	3.03E-01									
2.71E-02	3.05E-01	3.09E-01									
2.79E-02	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01
3.06E-02	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01	3.12E-01
3.44E-02	3.03E-01	3.04E-01									
3.88E-02	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01	3.08E-01
4.38E-02	3.73E-01	3.87E-01	3.87E-01	3.69E-01							
4.94E-02	5.77E-01	5.78E-01	5.78E-01	5.55E-01	5.55E-01	5.55E-01	5.55E-01	5.55E-01	5.44E-01	5.44E-01	5.44E-01
5.57E-02	2.38E-01	2.38E-01	2.38E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.30E-01	2.30E-01	2.30E-01
6.28E-02	2.21E-01	2.21E-01	2.21E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.10E-01	2.10E-01	2.10E-01
7.09E-02	2.03E-01	2.03E-01	2.03E-01	1.98E-01	1.98E-01	1.98E-01	1.98E-01	1.98E-01	1.93E-01	1.93E-01	1.93E-01
7.95E-02	1.85E-01	1.84E-01	1.84E-01	1.82E-01	1.82E-01	1.82E-01	1.82E-01	1.82E-01	1.77E-01	1.77E-01	1.77E-01
8.91E-02	1.64E-01	1.62E-01	1.62E-01	1.59E-01	1.59E-01	1.59E-01	1.59E-01	1.59E-01	1.52E-01	1.52E-01	1.52E-01
1.01E-02	1.41E-01	1.38E-01	1.38E-01	1.36E-01	1.36E-01	1.36E-01	1.36E-01	1.36E-01	1.27E-01	1.27E-01	1.27E-01
1.14E-02	1.21E-01	1.19E-01	1.19E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.12E-01	1.12E-01	1.12E-01
1.29E-02	1.01E-01	9.96E-02	9.96E-02	9.74E-02	9.74E-02	9.66E-02	9.66E-02	9.58E-02	9.38E-02	9.08E-02	9.08E-02
1.45E-02	8.56E-02	8.43E-02	8.43E-02	8.21E-02	8.21E-02	8.14E-02	8.14E-02	8.05E-02	7.86E-02	7.56E-02	7.56E-02
1.64E-02	7.24E-02	7.11E-02	7.11E-02	6.93E-02	6.93E-02	6.86E-02	6.86E-02	6.73E-02	6.44E-02	6.14E-02	6.14E-02
1.85E-02	6.09E-02	6.03E-02	5.95E-02	5.95E-02	5.88E-02	5.88E-02	5.82E-02	5.73E-02	5.47E-02	5.17E-02	5.17E-02
2.09E-02	5.17E-02	5.13E-02	5.10E-02	5.06E-02	5.02E-02	5.01E-02	4.98E-02	4.95E-02	4.69E-02	4.49E-02	4.49E-02
-	2.65E-02	4.42E-02	4.35E-02	4.32E-02							
-	2.66E-02	3.64E-02	3.65E-02	3.62E-02							

TABLE 14B

3.23E-02    3.17E-02    3.17E-02    2.75E-02

ORIGINAL PAGE IS  
OF POOR QUALITY

## DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/cm<sup>2</sup> DAY °NE V/N)

TABLE 15 A

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: N  
WINDFL = BAPP; TIME= 1984.20; PERIOD= 1.8723;  
(ATOM C-NUM= 7; ATOMIC-#= 14.01);  
6.3° DEG/1334-1334 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/SPCM•20 DAY MEV/N)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.20	0.50	1.0	3.0	5.0	10.0
3.9	6.2	1.47E-03	1.47E-02	1.47E-02	1.47E-02	1.47E-02	1.57E-02	1.62E-02	2.110E-02	2.25E-02	2.19E-02
4.4	6.3	1.23E-02	1.67E-02	1.67E-02	1.67E-02	1.67E-02	1.76E-02	1.86E-02	2.20E-02	2.32E-02	2.31E-02
6.0	3.8	1.08E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.07E-02	1.09E-02	2.03E-02	2.32E-02	2.55E-02
5.6	3.2	1.55E-02	2.34E-02	2.34E-02	2.34E-02	2.34E-02	2.39E-02	2.43E-02	2.58E-02	2.79E-02	2.87E-02
6.4	3.7	2.32E-02	2.37E-02	2.37E-02	2.37E-02	2.37E-02	2.39E-02	2.68E-02	2.88E-02	3.13E-02	3.14E-02
7.2	2.6	2.64E-02	3.05E-02	3.05E-02	3.05E-02	3.05E-02	3.07E-02	3.16E-02	3.29E-02	3.30E-02	3.30E-02
8.1	4.9	3.11E-02	3.72E-02	3.72E-02	3.72E-02	3.72E-02	3.44E-02	3.42E-02	3.75E-02	3.77E-02	3.80E-02
9.1	3.9	3.18E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.79E-02	3.79E-02	4.10E-02	4.16E-02	4.16E-02
10.3	6.3	4.22E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.34E-02	4.38E-02	4.44E-02	4.46E-02	4.46E-02
11.6	9.6	4.96E-02	4.99E-02	4.99E-02	4.99E-02	4.99E-02	4.83E-02	4.80E-02	4.85E-02	4.96E-02	4.96E-02
12.1	7.9	5.66E-02	5.16E-02	5.16E-02	5.16E-02	5.16E-02	5.36E-02	5.34E-02	5.35E-02	5.44E-02	5.44E-02
14.3	6.2	5.66E-02	5.85E-02	5.85E-02	5.85E-02	5.85E-02	5.85E-02	5.85E-02	5.86E-02	5.86E-02	5.86E-02
16.7	5.0	6.34E-02	6.07E-02	6.07E-02	6.07E-02	6.07E-02	6.28E-02	6.28E-02	6.29E-02	6.29E-02	6.29E-02
18.9	6.1	6.72E-02	6.77E-02	6.77E-02	6.77E-02	6.77E-02	6.81E-02	6.81E-02	6.89E-02	6.95E-02	6.97E-02
21.3	3.5	7.35E-02	7.35E-02	7.35E-02	7.35E-02	7.35E-02	7.37E-02	7.37E-02	7.45E-02	7.51E-02	7.51E-02
23.0	3.8	7.55E-02	7.44E-02	7.44E-02	7.44E-02	7.44E-02	7.49E-02	7.49E-02	7.55E-02	7.62E-02	7.62E-02
24.1	9.6	7.65E-02	7.61E-02	7.61E-02	7.61E-02	7.61E-02	7.65E-02	7.65E-02	7.71E-02	7.76E-02	7.76E-02
29.5	7.7	7.44E-02	7.44E-02	7.44E-02	7.44E-02	7.44E-02	7.48E-02	7.48E-02	7.54E-02	7.60E-02	7.60E-02
34.8	7.7	7.44E-02	7.11E-02	7.11E-02	7.11E-02	7.11E-02	7.05E-02	7.05E-02	7.35E-02	7.92E-02	7.92E-02
49.4	3.2	6.71E-02	6.66E-02	6.66E-02	6.66E-02	6.66E-02	6.66E-02	6.66E-02	6.98E-02	6.98E-02	6.98E-02
55.7	5.7	5.90E-02	5.56E-02	5.56E-02	5.56E-02	5.56E-02	5.77E-02	5.77E-02	6.52E-02	6.52E-02	6.52E-02
62.8	7.6	5.47E-02	5.14E-02	5.14E-02	5.14E-02	5.14E-02	5.35E-02	5.35E-02	5.70E-02	5.70E-02	5.70E-02
70.9	6.5	5.09E-02	4.91E-02	4.91E-02	4.91E-02	4.91E-02	4.89E-02	4.89E-02	5.25E-02	5.22E-02	5.17E-02
79.9	6.6	4.99E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.78E-02	4.78E-02	4.77E-02	4.71E-02	4.64E-02
90.1	7.5	4.77E-02	4.21E-02	4.21E-02	4.21E-02	4.21E-02	4.47E-02	4.47E-02	4.39E-02	4.14E-02	3.90E-02
91.7	7.0	3.99E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.34E-02	3.34E-02	3.74E-02	3.74E-02	3.74E-02
114.6	9.0	2.99E-02	2.95E-02	2.95E-02	2.95E-02	2.95E-02	2.91E-02	2.91E-02	2.80E-02	2.78E-02	2.78E-02
129.3	3.0	2.11E-02	2.43E-02	2.43E-02	2.43E-02	2.43E-02	2.43E-02	2.43E-02	2.38E-02	2.38E-02	2.38E-02
145.8	5.0	2.21E-02	2.04E-02	2.04E-02	2.04E-02	2.04E-02	2.06E-02	2.06E-02	2.00E-02	1.99E-02	1.99E-02
164.4	8.0	1.79E-02	1.76E-02	1.76E-02	1.76E-02	1.76E-02	1.74E-02	1.74E-02	1.73E-02	1.71E-02	1.71E-02
185.4	9.0	1.54E-02	1.22E-02	1.22E-02	1.22E-02						
229.1	8.0	1.22E-02	1.19E-02	1.19E-02	1.19E-02						
246.0	2.0	9.12E-03	9.05E-03	9.05E-03	9.05E-03	9.05E-03	8.87E-03	8.87E-03	8.63E-03	8.45E-03	8.17E-03

TABLE 15B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPPS COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: Q  
MODEL: BAGD TIME: 1984.700 C  
ATM. NUM: 811  
DATE: 06/01/35-1338 AM = 16.00

MAGNETOSPHERICALLY

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/MEV<sup>2</sup>DAY/MEV/N)

EN-UNATTEN- UATED ENERGY	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
1.2 2.0E-02	1.64E-02	0.3 2.0E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.14E-03	4.66E-03	6.02E-03	6.86E-03	8.26E-03	1.03E-02	1.10E-02
14 1.8E-01	1.8E-02	0.825 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
16 1.8E-01	1.8E-02	0.829 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
18 1.9E-01	1.9E-02	0.832 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
20 2.1E-01	2.1E-02	0.836 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
22 2.4E-01	2.4E-02	0.841 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
25 2.6E-01	2.6E-02	0.844 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
30 3.0E-01	3.0E-02	0.849 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
35 3.5E-01	3.5E-02	0.854 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
40 4.0E-01	4.0E-02	0.859 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
50 4.5E-01	4.5E-02	0.875 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
60 5.2E-01	5.2E-02	0.895 6.9E+00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
64 6.0E-01	6.0E-02	0.93E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
70 6.5E-01	6.5E-02	1.02E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
76 6.8E-01	6.8E-02	1.12E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
80 7.4E-01	7.4E-02	1.23E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
90 7.5E-01	7.5E-02	1.34E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
94 7.9E-01	7.9E-02	1.47E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
95 7.5E-01	7.5E-02	1.51E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
100 8.1E-01	8.1E-02	1.67E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
133 8.7E-01	8.7E-02	2.09E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
162 9.4E-01	9.4E-02	2.39E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
200 1.02E-00	1.02E-01	2.79E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
249 9.93E-01	9.93E-02	3.09E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
300 9.97E-01	9.97E-02	3.39E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
313 9.3E-01	9.3E-02	3.77E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
357 7.6E-01	7.6E-02	4.27E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
400 6.2E-01	6.2E-02	4.87E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
500 6.1E-01	6.1E-02	5.77E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
592 6.1E-01	6.1E-02	6.77E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
660 6.7E-01	6.7E-02	7.66E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
700 6.4E-01	6.4E-02	8.56E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
737 6.8E-01	6.8E-02	9.46E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
765 7.2E-01	7.2E-02	1.03E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
792 7.6E-01	7.6E-02	1.12E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
800 7.9E-01	7.9E-02	1.21E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
865 2.4E-01	2.4E-02	1.77E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
905 3.3E-01	3.3E-02	2.37E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
1000 2.6E-01	2.6E-02	2.97E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
1147 2.1E-01	2.1E-02	3.57E-00	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
1545 2.2E-01	2.2E-02	7.35E-02	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
2000 7.9E-02	5.79E-02	2.35E-02	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
-2120 7.91E-02	4.79E-02	3.14E-02	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						
-2977 3.41E-02	3.14E-02	35.13 4.77E-02	0.99E+00	0.99E+00	0.99E+00	0.99E+00	4.85E-03						

TABLE 16A

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: 0  
Model: HARR; TIME: 1999-2-0; PERIOD= 1.8723  
(ATOMIC-NUM: 6; ATOMIC-W= 16.03)  
6.3 DEG/134-133.4 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM\*\*2 DAY\*MEV/N)

	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.62	5.54E-02	5.53E-02	5.66E-02	5.78E-02	6.12E-02	6.41E-02	7.05E-02	7.80E-02	8.33E-02	8.32E-02	8.32E-02	8.32E-02
44.68	6.36E-02	6.40E-02	6.50E-02	6.59E-02	6.73E-02	6.84E-02	7.95E-02	8.00E-02	9.08E-02	9.08E-02	9.08E-02	9.08E-02
55.38	7.15E-02	7.23E-02	7.34E-02	7.45E-02	7.44E-02	7.91E-02	8.48E-02	8.49E-02	9.69E-02	9.69E-02	9.69E-02	9.69E-02
66.82	8.52E-02	8.50E-02	8.51E-02	8.51E-02	8.51E-02	9.03E-02	9.36E-02	9.36E-02	1.06E-01	1.06E-01	1.06E-01	1.06E-01
74.07	9.61E-02	9.52E-02	9.78E-02	9.88E-02	9.87E-02	1.00E-01	1.03E-01	1.05E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01
72.26	1.14E-01	1.14E-01	1.15E-01	1.16E-01	1.16E-01	1.16E-01	1.16E-01	1.16E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01
81.49	1.29E-01	1.29E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01	1.31E-01	1.31E-01	1.31E-01	1.31E-01
91.84	1.39E-01	1.41E-01	1.41E-01	1.42E-01	1.42E-01	1.43E-01	1.43E-01	1.43E-01	1.42E-01	1.42E-01	1.42E-01	1.42E-01
103.63	1.61E-01	1.62E-01	1.62E-01	1.61E-01	1.61E-01	1.62E-01	1.64E-01	1.64E-01	1.66E-01	1.66E-01	1.66E-01	1.66E-01
116.86	1.74E-01	1.79E-01										
131.84	1.93E-01	1.97E-01	1.97E-01	1.99E-01	1.99E-01	2.04E-01	2.04E-01	2.04E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01
145.62	2.16E-01	2.20E-01	2.20E-01	2.21E-01								
169.26	2.25E-01	2.27E-01	2.27E-01	2.27E-01	2.27E-01	2.35E-01						
181.21	2.31E-01	2.32E-01	2.32E-01	2.32E-01	2.32E-01	2.35E-01						
227.03	2.37E-01	2.38E-01										
235.70	2.39E-01											
244.74	2.385E-01											
248.77	2.70E-01	2.659E-01	2.659E-01	2.659E-01	2.659E-01	2.667E-01	2.667E-01	2.667E-01	2.665E-01	2.665E-01	2.665E-01	2.665E-01
248.43	2.56E-01	2.54E-01										
494.42	2.42E-01	2.42E-01	2.42E-01	2.42E-01	2.42E-01	2.37E-01	2.37E-01	2.37E-01	2.49E-01	2.49E-01	2.49E-01	2.49E-01
557.57	2.24E-01	2.24E-01	2.24E-01	2.24E-01	2.24E-01	2.21E-01	2.21E-01	2.21E-01	2.32E-01	2.32E-01	2.32E-01	2.32E-01
648.79	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.35E-01						
709.09	1.91E-01	1.87E-01	1.87E-01	1.87E-01	1.87E-01	1.84E-01	1.84E-01	1.84E-01	1.82E-01	1.82E-01	1.82E-01	1.82E-01
799.66	1.74E-01	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.69E-01	1.69E-01	1.69E-01	1.66E-01	1.66E-01	1.66E-01	1.66E-01
801.79	1.54E-01	1.52E-01	1.52E-01	1.52E-01	1.52E-01	1.49E-01	1.49E-01	1.49E-01	1.46E-01	1.46E-01	1.46E-01	1.46E-01
1.017.39	1.32E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.27E-01	1.27E-01	1.27E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
1.164.90	1.13E-01	1.12E-01	1.12E-01	1.12E-01	1.12E-01	1.09E-01	1.09E-01	1.09E-01	1.07E-01	1.07E-01	1.07E-01	1.07E-01
1.242.30	9.53E-02	9.34E-02	9.34E-02	9.34E-02	9.34E-02	9.20E-02	9.20E-02	9.20E-02	9.04E-02	9.04E-02	9.04E-02	9.04E-02
1.451.50	6.02E-02	5.89E-02	5.89E-02	5.89E-02	5.89E-02	7.71E-02	7.71E-02	7.71E-02	7.64E-02	7.64E-02	7.64E-02	7.64E-02
1.644.80	6.02E-02											
1.651.90	5.72E-02	5.64E-02	5.64E-02	5.64E-02	5.64E-02	5.55E-02	5.55E-02	5.55E-02	5.39E-02	5.39E-02	5.39E-02	5.39E-02
2.091.80	4.85E-02	4.32E-02	4.32E-02	4.32E-02	4.32E-02	4.01E-02	4.01E-02	4.01E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02
2.384.90	4.46E-02	4.46E-02	4.46E-02	4.46E-02	4.46E-02	3.35E-02	3.35E-02	3.35E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
2.660.0	3.20E-02											

TABLE 16.8

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: F  
MODEL = BARD; TIME = 1989-01-01; PERIOD = 1, 1873  
(ATOMIC-CNAME = 91 ATOMIC-NUM = 19, 00)  
(LAT=63.0 DEG/LAT=139.4 RAD)

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MAGNETOSPHERICALLY DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLE SZC/M\*\*2\*DAY\*MEV/N)

EN- ERGY	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
1.2	4.10E-03	3.19E-06	0.230	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.49E-04	1.70E-04	2.03E-04	2.59E-04	2.63E-04
1.4	4.10E-03	3.17E-06	0.230	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.49E-04	1.70E-04	2.03E-04	2.59E-04	2.63E-04
1.6	4.10E-03	3.16E-06	0.230	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.49E-04	1.70E-04	2.03E-04	2.59E-04	2.63E-04
1.8	4.10E-03	3.15E-06	0.230	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.49E-04	1.70E-04	2.03E-04	2.59E-04	2.63E-04
2.0	4.10E-03	3.15E-06	0.230	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.49E-04	1.70E-04	2.03E-04	2.59E-04	2.63E-04
2.2	5.12E-03	4.57E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.19E-05	9.48E-05	1.16E-04	1.16E-04	1.16E-04	1.16E-04
2.4	6.14E-03	5.17E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.76E-05	8.87E-05	1.07E-04	1.07E-04	1.07E-04	1.07E-04
2.6	7.16E-03	6.19E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.32E-05	8.87E-05	1.07E-04	1.07E-04	1.07E-04	1.07E-04
2.8	8.18E-03	7.16E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.88E-05	8.47E-05	1.03E-04	1.27E-04	1.52E-04	1.97E-04
3.0	9.20E-03	8.12E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.22E-05	9.22E-05	1.03E-04	1.27E-04	1.52E-04	1.97E-04
3.4	7.32E-03	9.16E-04	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-05	8.35E-05	1.01E-04	1.25E-04	1.50E-04	1.95E-04
4.0	8.34E-03	1.13E-03	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.04E-05	8.29E-05	1.01E-04	1.25E-04	1.50E-04	1.95E-04
4.6	9.36E-03	1.36E-03	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-05	8.28E-05	1.01E-04	1.25E-04	1.50E-04	1.95E-04
5.0	1.0E-02	1.49E-03	0.320	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.98E-05	8.98E-05	1.01E-04	1.25E-04	1.50E-04	1.95E-04
5.4	1.12E-02	1.33E-03	0.785	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-05	8.40E-05	1.02E-04	1.26E-04	1.51E-04	1.96E-04
6.0	1.25E-02	1.04E-03	0.950	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.52E-05	8.52E-05	1.03E-04	1.28E-04	1.53E-04	1.98E-04
6.4	1.38E-02	1.04E-03	1.050	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.77E-05	8.77E-05	1.05E-04	1.31E-04	1.57E-04	2.03E-04
7.0	1.51E-02	2.33E-03	1.210	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.92E-05	8.99E-05	1.08E-04	1.35E-04	1.63E-04	2.08E-04
7.6	1.64E-02	2.38E-03	1.370	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.29E-05	8.99E-05	1.12E-04	1.40E-04	1.70E-04	2.15E-04
8.0	1.78E-02	2.42E-03	1.540	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E-05	9.66E-05	1.16E-04	1.45E-04	1.75E-04	2.22E-04
9.0	1.92E-02	2.44E-03	1.670	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.96E-05	9.96E-05	1.19E-04	1.49E-04	1.83E-04	2.29E-04
9.4	1.66E-02	3.00E-03	1.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.98E-05	8.98E-05	1.01E-04	1.25E-04	1.51E-04	1.91E-04
10.0	1.49E-02	3.30E-03	1.250	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-05	8.40E-05	1.02E-04	1.26E-04	1.52E-04	1.92E-04
11.0	1.33E-02	4.14E-03	1.410	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.61E-05	7.61E-05	1.04E-04	1.30E-04	1.62E-04	2.04E-04
12.0	1.60E-02	2.01E-03	1.620	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.81E-05	7.81E-05	1.06E-04	1.32E-04	1.64E-04	2.06E-04
12.6	1.74E-02	2.01E-03	1.760	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.96E-05	7.96E-05	1.07E-04	1.33E-04	1.65E-04	2.07E-04
13.0	1.88E-02	2.11E-03	1.820	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.09E-05	8.09E-05	1.08E-04	1.34E-04	1.66E-04	2.08E-04
13.4	2.02E-02	2.11E-03	1.880	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.23E-05	8.23E-05	1.09E-04	1.35E-04	1.67E-04	2.09E-04
13.8	2.16E-02	2.11E-03	1.940	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.37E-05	8.37E-05	1.10E-04	1.36E-04	1.68E-04	2.10E-04
14.0	2.30E-02	2.11E-03	1.980	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.51E-05	8.51E-05	1.11E-04	1.37E-04	1.69E-04	2.11E-04
14.4	2.44E-02	2.11E-03	2.040	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.65E-05	8.65E-05	1.12E-04	1.38E-04	1.70E-04	2.12E-04
14.8	2.58E-02	2.11E-03	2.090	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.79E-05	8.79E-05	1.13E-04	1.39E-04	1.71E-04	2.13E-04
15.2	2.72E-02	2.11E-03	2.140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.93E-05	8.93E-05	1.14E-04	1.40E-04	1.72E-04	2.14E-04
15.6	2.86E-02	2.11E-03	2.190	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-05	9.07E-05	1.15E-04	1.41E-04	1.73E-04	2.15E-04
16.0	3.00E-02	2.11E-03	2.240	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.21E-05	9.21E-05	1.16E-04	1.42E-04	1.74E-04	2.16E-04
16.4	3.14E-02	2.11E-03	2.290	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.35E-05	9.35E-05	1.17E-04	1.43E-04	1.75E-04	2.17E-04
16.8	3.28E-02	2.11E-03	2.340	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.49E-05	9.49E-05	1.18E-04	1.44E-04	1.76E-04	2.18E-04
17.2	3.42E-02	2.11E-03	2.390	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.63E-05	9.63E-05	1.19E-04	1.45E-04	1.77E-04	2.19E-04
17.6	3.56E-02	2.11E-03	2.440	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-05	9.77E-05	1.20E-04	1.46E-04	1.78E-04	2.20E-04
18.0	3.70E-02	2.11E-03	2.490	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.91E-05	9.91E-05	1.21E-04	1.47E-04	1.79E-04	2.21E-04
18.4	3.84E-02	2.11E-03	2.540	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.005E-04	1.005E-04	1.22E-04	1.48E-04	1.80E-04	2.22E-04
18.8	3.98E-02	2.11E-03	2.590	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.019E-04	1.019E-04	1.23E-04	1.49E-04	1.81E-04	2.23E-04
19.2	4.12E-02	2.11E-03	2.640	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.033E-04	1.033E-04	1.24E-04	1.50E-04	1.82E-04	2.24E-04
19.6	4.26E-02	2.11E-03	2.690	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.047E-04	1.047E-04	1.25E-04	1.51E-04	1.83E-04	2.25E-04
20.0	4.40E-02	2.11E-03	2.740	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.061E-04	1.061E-04	1.26E-04	1.52E-04	1.84E-04	2.26E-04
20.4	4.54E-02	2.11E-03	2.790	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.075E-04	1.075E-04	1.27E-04	1.53E-04	1.85E-04	2.27E-04
20.8	4.68E-02	2.11E-03	2.840	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.089E-04	1.089E-04	1.28E-04	1.54E-04	1.86E-04	2.28E-04
21.2	4.82E-02	2.11E-03	2.890	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.103E-04	1.103E-04	1.29E-04	1.55E-04	1.87E-04	2.29E-04
21.6	4.96E-02	2.11E-03	2.940	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.117E-04	1.117E-04	1.30E-04	1.56E-04	1.88E-04	2.30E-04
22.0	5.10E-02	2.11E-03	2.990	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.131E-04	1.131E-04	1.31E-04	1.57E-04	1.89E-04	2.31E-04
22.4	5.24E-02	2.11E-03	3.040	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.145E-04	1.145E-04	1.32E-04	1.58E-04	1.90E-04	2.32E-04
22.8	5.38E-02	2.11E-03	3.090	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.159E-04	1.159E-04	1.33E-04	1.59E-04	1.91E-04	2.33E-04
23.2	5.52E-02	2.11E-03	3.140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.173E-04	1.173E-04	1.34E-04	1.60E-04	1.92E-04	2.34E-04
23.6	5.66E-02	2.11E-03	3.190	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.187E-04	1.187E-04	1.35E-04	1.61E-04	1.93E-04	2.35E-04
24.0	5.80E-02	2.11E-03	3.240	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.201E-04	1.201E-04	1.36E-04	1.62E-04	1.94E-04	2.36E-04
24.4	5.94E-02	2.11E-03	3.290	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.215E-04	1.215E-04	1.37E-04	1.63E-04	1.95E-04	2.37E-04
24.8	6.08E-02	2.11E-03	3.340	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.229E-04	1.229E-04	1.38E-04	1.64E-04	1.96E-04	2.38E-04
25.2	6.22E-02	2.11E-03	3.390	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.243E-04	1.243E-04	1.39E-04	1.65E-04	1.97E-04	2.39E-04
25.6	6.36E-02	2.11E-03	3.440	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.257E-04	1.257E-04	1.40E-04	1.66E-04	1.98E-04	2.40E-04
26.0	6.50E-02	2.11E-03	3.490	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.271E-04	1.271E-04	1.41E-04	1.67E-04	1.99E-04	2.41E-04
26.4	6.64E-02	2.11E-03	3.540	0.00E+00	0.00E+00	0.00E+00	0.0						

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPPIX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: F  
MODEL = BARRI TIME = 1989-200 PERIOD = 1-8723  
ATOMIC-NUM = 9; ATOMIC-C = 15.000; KM = 15.34; KM  
6.5-0 DEG/1334-1334 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
1.9E-02	1.17E-03	1.18E-03	1.21E-03	1.23E-03	1.26E-03	1.40E-03	1.51E-03	1.71E-03	1.82E-03	1.79E-03	1.79E-03
4.4E-04	1.15E-03	1.16E-03	1.17E-03	1.18E-03	1.19E-03	1.21E-03	1.22E-03	1.24E-03	1.25E-03	1.25E-03	1.25E-03
5.6E-04	1.24E-03										
5.6E-04	1.24E-03										
6.4E-07	2.04E-03	2.05E-03	2.06E-03	2.07E-03	2.08E-03	2.10E-03	2.12E-03	2.14E-03	2.16E-03	2.18E-03	2.20E-03
7.2E-06	2.45E-03										
81.49	2.75E-03										
91.49	2.91E-02	2.90E-02	2.89E-02	2.88E-02	2.87E-02	2.86E-02	2.85E-02	2.84E-02	2.83E-02	2.82E-02	2.81E-02
105.83	2.17E-02	2.14E-02	2.11E-02	2.08E-02	2.05E-02	2.01E-02	1.97E-02	1.92E-02	1.87E-02	1.82E-02	1.77E-02
116.86	2.70E-02	2.69E-02	2.68E-02	2.67E-02	2.66E-02	2.65E-02	2.64E-02	2.63E-02	2.62E-02	2.61E-02	2.60E-02
131.79	4.40E-03	4.19E-03	4.22E-03	4.25E-03	4.28E-03	4.31E-03	4.35E-03	4.38E-03	4.41E-03	4.44E-03	4.47E-03
148.62	4.55E-03	4.69E-03	4.72E-03	4.74E-03	4.77E-03	4.79E-03	4.81E-03	4.83E-03	4.85E-03	4.87E-03	4.89E-03
167.60	4.99E-03	5.02E-03	5.04E-03	5.06E-03	5.08E-03	5.10E-03	5.12E-03	5.14E-03	5.16E-03	5.18E-03	5.20E-03
189.01	6.42E-03	5.63E-03	5.66E-03	5.69E-03	5.72E-03	5.75E-03	5.78E-03	5.81E-03	5.84E-03	5.87E-03	5.90E-03
213.15	5.35E-03										
240.18	6.07E-03										
271.28	6.17E-03	6.19E-03									
305.70	6.44E-03	6.37E-03	6.24E-03	6.02E-03	5.99E-03	5.96E-03	5.93E-03	5.90E-03	5.87E-03	5.84E-03	5.81E-03
344.74	6.15E-03										
383.77	5.76E-03										
448.43	5.45E-03										
494.43	5.47E-03										
557.7	4.76E-03										
628.79	4.15E-03										
709.04	3.10E-03										
799.04	3.05E-03										
901.75	3.08E-03										
1017.00	2.45E-03										
1146.00	2.21E-03										
1292.39	2.21E-03										
1458.50	1.71E-03	1.69E-03									
1644.80	1.45E-03	1.43E-03									
1854.90	1.22E-03										
2091.80	1.07E-03										
2358.90	8.44E-04										
2660.20	7.36E-04										

TABLE 17B

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: NE  
 MODEL = HARRIC TIME 1989.201; PERIOD = 1, 1723  
 (ATOMIC NUMBER = 10; A TOMIC = 29.134 Km  
 - 63.0 DEG) 1334-1334 Km

MAGNETOSPHERICALLY DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELD (PARTICLES/MEV/N)

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12.5-1.8E-02	2.58E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-03
14.2-9.6E-02	2.57E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03
16.2-5.6E-02	2.71E-03	-0.025	0.00E+00	1.84E-03										
18.3-0.5E-02	2.89E-03	-0.029	0.00E+00	1.74E-03										
20.3-3.2E-02	3.38E-03	-0.032	0.00E+00	1.68E-03										
22.3-7.9E-02	3.97E-03	-0.036	0.00E+00	1.62E-03										
23.4-8.2E-02	4.75E-03	-0.041	0.00E+00	1.57E-03										
26.4-8.8E-02	5.54E-03	-0.046	0.00E+00	1.54E-03										
29.4-9.4E-02	6.36E-03	-0.052	0.00E+00	1.51E-03										
34.6-6.4E-02	6.54E-03	-0.057	0.00E+00	1.50E-03										
40.6-4.4E-02	6.54E-03	-0.067	0.00E+00	1.49E-03										
46.7-2.7E-02	1.02E-02	-0.075	0.00E+00	1.49E-03										
50.8-2.7E-02	1.27E-02	-0.085	0.00E+00	1.49E-03										
54.9-2.7E-02	1.52E-02	-0.095	0.00E+00	1.49E-03										
60.9-5.6E-02	1.62E-02	-0.105	0.00E+00	1.49E-03										
70.1-9.5E-02	1.62E-02	-0.121	0.00E+00	1.49E-03										
76.0-1.4E-01	1.62E-02	-0.155	0.00E+00	1.49E-03										
80.1-1.4E-01	1.62E-02	-0.184	0.00E+00	1.49E-03										
91.1-1.4E-01	1.62E-02	-0.214	0.00E+00	1.49E-03										
91.1-1.4E-01	1.62E-02	-0.243	0.00E+00	1.49E-03										
91.1-1.4E-01	1.62E-02	-0.272	0.00E+00	1.49E-03										
100.1-2.5E-01	2.42E-02	-0.302	0.00E+00	1.49E-03										
123.1-3.9E-01	3.14E-02	-0.371	0.00E+00	1.49E-03										
162.1-4.9E-01	3.77E-02	-0.421	0.00E+00	1.49E-03										
200.1-6.6E-01	4.29E-02	-0.470	0.00E+00	1.49E-03										
249.1-5.5E-01	4.66E-02	-0.518	0.00E+00	1.49E-03										
399.1-4.5E-01	4.89E-02	-0.555	0.00E+00	1.49E-03										
313.1-4.9E-01	4.92E-02	-0.575	0.00E+00	1.49E-03										
397.1-2.1E-01	4.40E-02	-0.614	0.00E+00	1.49E-03										
400.1-2.1E-01	4.38E-02	-0.632	0.00E+00	1.49E-03										
400.1-2.1E-01	4.38E-02	-0.650	0.00E+00	1.49E-03										
500.9-8.8E-02	3.89E-02	-0.731	0.00E+00	1.49E-03										
509.9-8.8E-02	3.95E-02	-0.739	0.00E+00	1.49E-03										
600.8-1.4E-02	3.45E-02	-0.808	0.00E+00	1.49E-03										
660.7-1.4E-02	3.24E-02	-0.847	0.00E+00	1.49E-03										
709.7-9.3E-02	3.01E-02	-0.895	0.00E+00	1.49E-03										
800.6-3.8E-02	2.79E-02	-0.932	0.00E+00	1.49E-03										
865.5-4.4E-02	2.65E-02	-0.951	0.00E+00	1.49E-03										
900.5-2.2E-02	2.50E-02	-0.970	0.00E+00	1.49E-03										
1000.4-4.4E-02	4.17E-02	-0.983	0.00E+00	1.49E-03										
1147.3-4.4E-02	1.38E-02	-0.981	0.00E+00	1.49E-03										
1545.2-0.00E-02	1.11E-02	-0.974	0.00E+00	1.49E-03										
2000.1-2.2E-02	9.1E-03	-0.965	0.00E+00	1.49E-03										
2129.1-1.4E-02	7.59E-03	-0.954	0.00E+00	1.49E-03										
2977.6-3.00E-02	4.91E-03	-0.941	0.00E+00	1.49E-03										

SHIELD THICKNESS (GM/CM<sup>2</sup>)  
 1.07E-02 1.13E-02 1.20E-02 1.07E-02

TABLE 18A

ORIGINAL PAGE IS  
OF POOR QUALITY

**TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: NE**  
**"OÖTEL = BARR: TIME= 1989.2-0.0 PERIOD= 1.8723**  
**(ATOMIC-NUM= 10; ATOMIC-W= 20.18)**  
**6.3 0 DEC/1334-1334 KM**

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY\*MEV/N)

TABLE 18 B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR : NA  
MODEL = RARM; TIME = 1989.2.0; PERIOD = 1.8723  
(ATOMIC NUMBER 11; ATOMIC WEIGHT = 12.99)  
-63.0 DEG+13.9-133.4 KW

\*\*\*\*\* MAGNETOSPHERICALLY ATTEN- SHIELD THICKNESS (GM/CM<sup>2</sup>DAY<sup>-1</sup>EV<sup>-1</sup>) \*\*\*\*\*

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY<sup>-1</sup>EV<sup>-1</sup>)

EN- UNATTEN- ENERGY	ATTEN- ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12.6-02E-03	4.89F-03	0.00E+00	0.00E+00	1.84E-04	1.99E-04	1.85E-04	2.72E-04	3.05E-04	3.65E-04	4.44E-04	4.44E-04	4.33E-04
14.5.60E-03	4.86E-03	0.00E+00	0.00E+00	1.74E-04	1.87E-04	1.74E-04	2.61E-04	2.76E-04	3.45E-04	4.19E-04	4.19E-04	4.08E-04
16.5.74E-03	5.14E-03	0.00E+00	0.00E+00	1.63E-04	1.76E-04	1.64E-04	2.51E-04	2.70E-04	3.44E-04	4.19E-04	4.19E-04	3.94E-04
18.6.11E-03	5.46E-03	0.00E+00	0.00E+00	1.54E-04	1.66E-04	1.55E-04	2.38E-04	2.55E-04	3.22E-04	3.92E-04	3.92E-04	3.62E-04
20.6.11E-03	5.46E-03	0.00E+00	0.00E+00	1.54E-04	1.66E-04	1.55E-04	2.38E-04	2.55E-04	3.22E-04	3.92E-04	3.92E-04	3.62E-04
22.7.16E-03	7.31E-03	0.00E+00	0.00E+00	1.45E-04	1.60E-04	1.49E-04	2.19E-04	2.46E-04	3.15E-04	3.84E-04	3.84E-04	3.55E-04
23.7.16E-03	7.31E-03	0.00E+00	0.00E+00	1.43E-04	1.54E-04	1.43E-04	2.11E-04	2.38E-04	3.04E-04	3.74E-04	3.74E-04	3.45E-04
26.8.31E-03	8.55E-03	0.00E+00	0.00E+00	1.42E-04	1.48E-04	1.39E-04	2.13E-04	2.35E-04	3.03E-04	3.72E-04	3.72E-04	3.43E-04
28.9.32E-03	1.05E-02	0.00E+00	0.00E+00	1.40E-04	1.40E-04	1.37E-04	2.17E-04	2.43E-04	3.05E-04	3.78E-04	3.78E-04	3.47E-04
30.1.3E-02	1.15E-02	0.00E+00	0.00E+00	1.38E-04	1.38E-04	1.34E-04	2.19E-04	2.42E-04	3.07E-04	3.81E-04	3.81E-04	3.51E-04
34.1.22E-02	1.39E-02	0.00E+00	0.00E+00	1.36E-04	1.36E-04	1.34E-04	2.16E-04	2.41E-04	3.04E-04	3.79E-04	3.79E-04	3.49E-04
40.1.3E-02	1.49E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.15E-04	2.40E-04	3.03E-04	3.78E-04	3.78E-04	3.48E-04
46.1.37E-02	1.77E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.14E-04	2.39E-04	3.02E-04	3.77E-04	3.77E-04	3.47E-04
50.1.45E-02	2.09E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.13E-04	2.38E-04	3.01E-04	3.76E-04	3.76E-04	3.46E-04
54.1.56E-02	2.49E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.12E-04	2.37E-04	3.00E-04	3.75E-04	3.75E-04	3.45E-04
58.1.77E-02	2.77E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.11E-04	2.36E-04	2.99E-04	3.74E-04	3.74E-04	3.44E-04
64.1.89E-02	3.02E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.10E-04	2.35E-04	2.98E-04	3.73E-04	3.73E-04	3.43E-04
70.1.95E-02	3.27E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.09E-04	2.34E-04	2.97E-04	3.72E-04	3.72E-04	3.42E-04
76.2.13E-02	3.52E-02	0.00E+00	0.00E+00	1.35E-04	1.35E-04	1.33E-04	2.08E-04	2.33E-04	2.96E-04	3.71E-04	3.71E-04	3.41E-04
90.2.45E-02	4.15E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.07E-04	2.32E-04	2.95E-04	3.70E-04	3.70E-04	3.40E-04
94.2.55E-02	4.19E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.06E-04	2.31E-04	2.94E-04	3.69E-04	3.69E-04	3.39E-04
96.2.67E-02	4.25E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.05E-04	2.30E-04	2.93E-04	3.68E-04	3.68E-04	3.38E-04
98.2.75E-02	4.35E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.04E-04	2.29E-04	2.92E-04	3.67E-04	3.67E-04	3.37E-04
100.2.83E-02	4.39E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.03E-04	2.28E-04	2.91E-04	3.66E-04	3.66E-04	3.36E-04
109.2.93E-02	4.46E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.02E-04	2.27E-04	2.90E-04	3.65E-04	3.65E-04	3.35E-04
133.2.92E-02	5.14E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.01E-04	2.26E-04	2.89E-04	3.64E-04	3.64E-04	3.34E-04
162.2.31E-02	5.11E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	2.00E-04	2.25E-04	2.88E-04	3.63E-04	3.63E-04	3.33E-04
200.2.34E-02	5.11E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.99E-04	2.24E-04	2.87E-04	3.62E-04	3.62E-04	3.32E-04
249.2.46E-02	5.09E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.98E-04	2.23E-04	2.86E-04	3.61E-04	3.61E-04	3.31E-04
309.2.55E-02	5.09E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.97E-04	2.22E-04	2.85E-04	3.60E-04	3.60E-04	3.30E-04
313.2.59E-02	5.12E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.96E-04	2.21E-04	2.84E-04	3.59E-04	3.59E-04	3.29E-04
357.2.71E-02	5.12E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.95E-04	2.20E-04	2.83E-04	3.58E-04	3.58E-04	3.28E-04
397.2.73E-02	5.13E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.94E-04	2.19E-04	2.82E-04	3.57E-04	3.57E-04	3.27E-04
400.2.78E-02	5.12E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.93E-04	2.18E-04	2.81E-04	3.56E-04	3.56E-04	3.26E-04
500.1.16E-02	7.35E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.92E-04	2.17E-04	2.80E-04	3.55E-04	3.55E-04	3.25E-04
539.1.13E-02	7.39E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.91E-04	2.16E-04	2.79E-04	3.54E-04	3.54E-04	3.24E-04
600.1.14E-02	6.33E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.90E-04	2.15E-04	2.78E-04	3.53E-04	3.53E-04	3.23E-04
660.1.11E-02	6.33E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.89E-04	2.14E-04	2.77E-04	3.52E-04	3.52E-04	3.22E-04
760.1.3E-02	5.96E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.88E-04	2.13E-04	2.76E-04	3.51E-04	3.51E-04	3.21E-04
800.1.34E-02	5.99E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.87E-04	2.12E-04	2.75E-04	3.50E-04	3.50E-04	3.20E-04
865.1.34E-02	4.98E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.86E-04	2.11E-04	2.74E-04	3.49E-04	3.49E-04	3.19E-04
900.9.98E-02	4.98E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.85E-04	2.10E-04	2.73E-04	3.48E-04	3.48E-04	3.18E-04
1009.4.93E-02	4.93E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.84E-04	2.09E-04	2.72E-04	3.47E-04	3.47E-04	3.17E-04
1147.6.3E-02	3.45E-02	0.00E+00	0.00E+00	1.34E-04	1.34E-04	1.33E-04	1.83E-04	2.08E-04	2.71E-04	3.46E-04	3.46E-04	3.16E-04
2977.1.44E-02	1.42E-02	0.00E+00	0.00E+00	1.34E-04	1.42E-02							
2020.2.1E-02	1.25E-02	0.00E+00	0.00E+00	1.34E-04	1.25E-02							
2129.2.1E-02	1.22E-02	0.00E+00	0.00E+00	1.34E-04	1.22E-02							
2197.1.44E-02	1.42E-02	0.00E+00	0.00E+00	1.34E-04	1.42E-02							

TABLE 29A

ORIGINAL PAGE IS  
OF POOR QUALITY

TRIPLEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: NA  
MODEL = BAND; TIME= 1989.2+0.1E-03; T0DE= 1.8723  
(ATOMIC-NUMB: 11; ATOMIC-W: 22.99)  
63.0 DEG/133.4-133.4 RA

DIFFERENTIAL FLUX BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEVN)

SHIELD THICKNESS (GR/CM <sup>2</sup> )	0.01	0.03	0.05	0.07	0.10	0.20	0.50	1.0	3.0	5.0	10.0
0.0052	1.66E-03	1.65E-03	1.65E-03	1.71E-03	1.74E-03	1.74E-03	1.92E-03	2.16E-03	2.43E-03	2.55E-03	2.41E-03
4.66E-04	1.89E-03	1.89E-03	1.89E-03	1.91E-03	1.91E-03	1.91E-03	2.05E-03	2.20E-03	2.40E-03	2.77E-03	2.61E-03
5.038E-03	2.13E-03	2.13E-03	2.13E-03	2.15E-03	2.15E-03	2.15E-03	2.30E-03	2.43E-03	2.73E-03	2.96E-03	2.70E-03
5.046E-02	2.55E-03	2.54E-03	2.54E-03	2.54E-03	2.54E-03	2.54E-03	2.79E-03	2.97E-03	3.24E-03	3.28E-03	3.01E-03
6.407E-02	2.85E-03	2.97E-03	2.97E-03	2.99E-03	2.99E-03	2.99E-03	3.11E-03	3.18E-03	3.31E-03	3.49E-03	3.56E-03
7.222E-02	3.31E-03	3.42E-03	3.42E-03	3.43E-03	3.43E-03	3.43E-03	3.52E-03	3.57E-03	3.73E-03	3.95E-03	3.61E-03
8.144E-02	3.80E-03	3.95E-03	3.95E-03	3.98E-03	3.98E-03	3.98E-03	4.18E-03	4.26E-03	4.37E-03	4.41E-03	4.37E-03
9.189E-02	4.13E-03	4.25E-03	4.25E-03	4.25E-03	4.25E-03	4.25E-03	4.42E-03	4.48E-03	4.52E-03	4.59E-03	4.29E-03
10.223E-02	4.42E-03	4.52E-03	4.52E-03	4.52E-03	4.52E-03	4.52E-03	4.70E-03	4.76E-03	4.81E-03	4.87E-03	4.98E-03
11.158E-02	4.74E-03	4.85E-03	4.85E-03	4.85E-03	4.85E-03	4.85E-03	5.03E-03	5.08E-03	5.12E-03	5.18E-03	5.25E-03
12.117E-02	5.14E-03	5.35E-03	5.35E-03	5.35E-03	5.35E-03	5.35E-03	5.53E-03	5.57E-03	5.62E-03	5.68E-03	5.75E-03
14.066E-02	6.05E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.66E-03	6.90E-03	6.95E-03	6.98E-03	6.98E-03
16.016E-02	6.53E-03	6.95E-03	6.95E-03	6.95E-03	6.95E-03	6.95E-03	7.14E-03	7.26E-03	7.30E-03	7.34E-03	7.34E-03
18.969E-02	7.69E-03	8.25E-03	8.25E-03	8.25E-03	8.25E-03	8.25E-03	8.71E-03	8.79E-03	8.82E-03	8.85E-03	8.85E-03
21.913E-02	8.51E-03	9.16E-03	9.16E-03	9.16E-03	9.16E-03	9.16E-03	9.64E-03	9.75E-03	9.78E-03	9.81E-03	9.81E-03
24.857E-02	9.55E-03	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.08E-02	1.13E-02	1.17E-02	1.21E-02	1.21E-02
27.801E-02	1.07E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.20E-02	1.25E-02	1.29E-02	1.33E-02	1.33E-02
30.745E-02	1.21E-02	1.28E-02	1.28E-02	1.28E-02	1.28E-02	1.28E-02	1.35E-02	1.41E-02	1.47E-02	1.53E-02	1.53E-02
33.679E-02	1.37E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.52E-02	1.58E-02	1.64E-02	1.70E-02	1.70E-02
36.613E-02	1.55E-02	1.64E-02	1.64E-02	1.64E-02	1.64E-02	1.64E-02	1.71E-02	1.78E-02	1.84E-02	1.90E-02	1.90E-02
40.547E-02	1.76E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.93E-02	2.00E-02	2.06E-02	2.12E-02	2.12E-02
44.481E-02	1.99E-02	2.10E-02	2.10E-02	2.10E-02	2.10E-02	2.10E-02	2.17E-02	2.24E-02	2.30E-02	2.36E-02	2.36E-02
48.415E-02	2.25E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.43E-02	2.50E-02	2.56E-02	2.62E-02	2.62E-02
52.349E-02	2.55E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.74E-02	2.81E-02	2.87E-02	2.93E-02	2.93E-02
56.283E-02	2.87E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.07E-02	3.14E-02	3.20E-02	3.26E-02	3.26E-02
60.217E-02	3.21E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.42E-02	3.49E-02	3.55E-02	3.61E-02	3.61E-02
64.151E-02	3.57E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.80E-02	3.87E-02	3.94E-02	4.01E-02	4.01E-02
68.085E-02	3.95E-02	4.12E-02	4.12E-02	4.12E-02	4.12E-02	4.12E-02	4.20E-02	4.27E-02	4.34E-02	4.41E-02	4.41E-02
72.019E-02	4.35E-02	4.54E-02	4.54E-02	4.54E-02	4.54E-02	4.54E-02	4.62E-02	4.70E-02	4.78E-02	4.85E-02	4.85E-02
75.953E-02	4.77E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.08E-02	5.16E-02	5.23E-02	5.30E-02	5.30E-02
80.887E-02	5.21E-02	5.45E-02	5.45E-02	5.45E-02	5.45E-02	5.45E-02	5.53E-02	5.61E-02	5.68E-02	5.75E-02	5.75E-02
85.821E-02	5.67E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	6.00E-02	6.08E-02	6.15E-02	6.22E-02	6.22E-02
90.755E-02	6.15E-02	6.41E-02	6.41E-02	6.41E-02	6.41E-02	6.41E-02	6.49E-02	6.57E-02	6.64E-02	6.71E-02	6.71E-02
95.689E-02	6.65E-02	6.92E-02	6.92E-02	6.92E-02	6.92E-02	6.92E-02	7.00E-02	7.08E-02	7.15E-02	7.22E-02	7.22E-02
100.623E-02	7.17E-02	7.45E-02	7.45E-02	7.45E-02	7.45E-02	7.45E-02	7.53E-02	7.61E-02	7.68E-02	7.75E-02	7.75E-02
105.557E-02	7.72E-02	8.01E-02	8.01E-02	8.01E-02	8.01E-02	8.01E-02	8.10E-02	8.18E-02	8.26E-02	8.33E-02	8.33E-02
110.491E-02	8.30E-02	8.60E-02	8.60E-02	8.60E-02	8.60E-02	8.60E-02	8.69E-02	8.78E-02	8.86E-02	8.93E-02	8.93E-02
115.425E-02	8.90E-02	9.21E-02	9.21E-02	9.21E-02	9.21E-02	9.21E-02	9.30E-02	9.39E-02	9.47E-02	9.55E-02	9.55E-02
120.359E-02	9.52E-02	9.83E-02	9.83E-02	9.83E-02	9.83E-02	9.83E-02	9.92E-02	1.00E-02	1.07E-02	1.14E-02	1.14E-02
125.293E-02	1.02E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.15E-02	1.23E-02	1.30E-02	1.37E-02	1.37E-02
130.227E-02	1.10E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.23E-02	1.31E-02	1.38E-02	1.45E-02	1.45E-02
135.161E-02	1.19E-02	1.23E-02	1.23E-02	1.23E-02	1.23E-02	1.23E-02	1.32E-02	1.40E-02	1.47E-02	1.54E-02	1.54E-02
140.095E-02	1.29E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.42E-02	1.50E-02	1.57E-02	1.64E-02	1.64E-02
145.029E-02	1.40E-02	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.53E-02	1.61E-02	1.68E-02	1.75E-02	1.75E-02
149.963E-02	1.52E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.65E-02	1.73E-02	1.80E-02	1.87E-02	1.87E-02
154.897E-02	1.65E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.78E-02	1.86E-02	1.93E-02	2.00E-02	2.00E-02
159.831E-02	1.80E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.93E-02	2.01E-02	2.08E-02	2.15E-02	2.15E-02
164.765E-02	1.96E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.09E-02	2.17E-02	2.24E-02	2.31E-02	2.31E-02
169.700E-02	2.13E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.26E-02	2.34E-02	2.41E-02	2.48E-02	2.48E-02
174.634E-02	2.31E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.44E-02	2.52E-02	2.60E-02	2.67E-02	2.67E-02
179.568E-02	2.51E-02	2.55E-02	2.55E-02	2.55E-02	2.55E-02	2.55E-02	2.64E-02	2.72E-02	2.80E-02	2.87E-02	2.87E-02
184.502E-02	2.73E-02	2.77E-02	2.77E-02	2.77E-02	2.77E-02	2.77E-02	2.86E-02	2.94E-02	3.02E-02	3.10E-02	3.10E-02
189.436E-02	2.97E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.10E-02	3.18E-02	3.26E-02	3.33E-02	3.33E-02
194.370E-02	3.23E-02	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.36E-02	3.44E-02	3.52E-02	3.60E-02	3.60E-02
199.304E-02	3.51E-02	3.55E-02	3.55E-02	3.55E-02	3.55E-02	3.55E-02	3.64E-02	3.72E-02	3.80E-02	3.88E-02	3.88E-02
204.238E-02	3.81E-02	3.85E-02	3.85E-02	3.85E-02	3.85E-02	3.85E-02	3.94E-02	4.02E-02	4.10E-02	4.18E-02	4.18E-02
209.172E-02	4.12E-02	4.16E-02	4.16E-02	4.16E-02	4.16E-02	4.16E-02	4.25E-02	4.33E-02	4.41E-02	4.49E-02	4.49E-02
214.106E-02	4.44E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.48E-02	4.57E-02	4.65E-02	4.73E-02	4.81E-02	4.81E-02
219.040E-02	4.77E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.90E-02	4.98E-02	5.06E-02	5.14E-02	5.14E-02
223.974E-02	5.11E-02	5.15E-02	5.15E-02	5.15E-02	5.15E-02	5.15E-02	5.24E-02	5.32E-02	5.40E-02	5.48E-02	5.48E-02
228.908E-02	5.46E-02	5.50E-02	5.50E-02	5.50E-02	5.50E-02	5.50E-02	5.59E-02	5.67E-02	5.75E-02	5.83E-02	5.83E-02
233.842E-02	5.82E-02	5.86E-02	5.86E-02	5.86E-02	5.86E-02	5.86E-02	5.95E-02	6.03E-02	6.11E-02	6.19E-02	6.19E-02
238.776E-02	6.19E-02	6.23E-02	6.23E-02	6.23E-02	6.23E-02	6.23E-02	6.32E-02	6.40E-02	6.48E-02	6.56E-02	6.56E-02
243.710E-02	6.57E-02	6.61E-02	6.61E-02	6.61E-02	6.61E-02	6.61E-02	6.70E-02	6.78E-02	6.86E-02	6.94E-02	6.94E-02
248.644E-02	6.96E-02	7.00E-02	7.00E-02	7.00E-02	7.00E-02	7.00E-02	7.09E-02	7.17E-02	7.25E-02	7.33E-02	7.33E-02
253.578E-02	7.36E-02	7.40E-02	7.40E-02	7.40E-02	7.40E-02	7.40E-02	7.49E-02	7.57E-02	7.65E-02	7.73E-02	7.73E-02
258.512E-02	7.74E-02	7.78E-02	7.78E-02	7.78E-02	7.78E-02	7.78E-02	7.87E-02	7.95E-02	8.03E-02	8.11E-02	8.11E-02
263.446E-02	8.13E-02	8.17E-02	8.17E-02	8.17E-02	8.17E-02	8.17E-02	8.26E-02	8.34E-02	8.42E-02	8.50E-02	8.50E-02
268.380E-02	8.53E-02	8.57E-02	8.57E-02	8.57E-02	8.57E-02	8.57E-02	8.66E-02	8.74E-02	8.82E-02	8.90E-02	8.90E-02
273.314E-02	8.93E-02	9.07E-02	9.								

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 20 A

**ORIGINAL PAGE IS  
OF POOR QUALITY.**

**TOPOTX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: MG  
WDFL = BARR: TIME = 1989-2-0:0 PERIOD= 1.8723  
(ATOMIC-NUM: 12: ATOMIC-# = 24-32)  
63.0 DEG 134-133.4 KM**

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CMS<sup>-2</sup>•DAY<sup>-1</sup>•MEV/N)

TABLE 208

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR : AL  
 MODEL = BARRI TIME 1989-2-15; PERIOD= 1-8723  
 ATOMIC NUMBER 133; ATOMIC Wt= 26.981  
 63.0 DEG+133.4 RM= 26.981

MAGNETOSPHERICALLY ATTEN-  
UNATTEN- UATED

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
1.2	7.74E-03	6.28E-04	0.20	0.00F+00	0.00E+00	3.03E-04	2.79E-04	2.66E-04	4.26E-04	4.65E-04	5.75E-04	6.73E-04	6.68E-04	6.21E-04
1.4	7.20E-03	6.15E-04	0.23	0.00E+00	0.00E+00	2.96E-04	2.71E-04	2.56E-04	4.02E-04	4.39E-04	5.30E-04	6.30E-04	6.86E-04	5.51E-04
1.6	7.20E-03	6.10E-04	0.25	0.00E+00	0.00E+00	2.90E-04	2.77E-04	2.56E-04	4.02E-04	4.12E-04	5.10E-04	5.92E-04	5.51E-04	5.19E-04
1.8	7.38E-03	7.22E-04	0.29	0.00E+00	0.00E+00	2.94E-04	2.83E-04	2.42E-04	3.42E-04	3.56E-04	4.89E-04	5.92E-04	5.92E-04	5.19E-04
2.0	8.11E-03	8.62E-04	0.32	0.00E+00	0.00E+00	2.94E-04	2.84E-04	2.32E-04	3.42E-04	3.73E-04	5.40E-04	5.37E-04	5.40E-04	4.77E-04
2.3	9.12E-03	9.66E-04	0.36	0.00F+00	0.00E+00	2.33E-04	2.14E-04	2.22E-04	3.27E-04	3.57E-04	4.42E-04	5.17E-04	4.77E-04	4.77E-04
2.6	1.03E-02	1.15E-04	0.41	0.00E+00	0.00E+00	2.28E-04	2.02E-04	2.12E-04	3.13E-04	3.41E-04	4.22E-04	4.94E-04	4.56E-04	4.56E-04
3.0	1.17E-02	1.34E-04	0.46	0.00E+00	0.00E+00	2.19E-04	2.02E-04	2.08E-04	3.07E-04	3.35E-04	4.15E-04	4.85E-04	4.48E-04	4.48E-04
3.4	1.33E-02	1.54E-04	0.52	0.00E+00	0.00E+00	2.07E-04	1.97E-04	2.04E-04	3.00E-04	3.27E-04	4.05E-04	4.74E-04	4.70E-04	4.37E-04
3.9	1.56E-02	2.04E-04	0.59	0.00E+00	0.00E+00	2.11E-04	1.94E-04	2.03E-04	2.95E-04	3.22E-04	3.99E-04	4.66E-04	4.63E-04	4.30E-04
4.6	1.86E-02	2.95E-04	0.67	0.00E+00	0.00E+00	2.08E-04	1.90E-04	2.00E-04	2.91E-04	3.14E-04	3.94E-04	4.60E-04	4.57E-04	4.25E-04
5.5	2.30E-02	3.71E-04	0.75	0.00E+00	0.00E+00	2.08E-04	1.91E-04	2.00E-04	2.90E-04	3.16E-04	3.92E-04	4.58E-04	4.55E-04	4.23E-04
6.0	2.51E-02	4.27E-04	0.85	0.00E+00	0.00E+00	2.09E-04	1.93E-04	2.01E-04	2.91E-04	3.18E-04	3.91E-04	4.56E-04	4.52E-04	4.23E-04
7.0	2.94E-02	4.91E-04	0.98	0.00E+00	0.00E+00	2.11E-04	1.95E-04	2.02E-04	2.94E-04	3.21E-04	3.97E-04	4.59E-04	4.24E-04	4.22E-04
7.6	3.42E-02	5.47E-04	1.12	0.00E+00	0.00E+00	2.14E-04	1.98E-04	2.05E-04	2.98E-04	3.28E-04	4.02E-04	4.70E-04	4.67E-04	4.34E-04
8.0	3.74E-02	5.91E-04	1.25	0.00E+00	0.00E+00	2.19E-04	2.02E-04	2.08E-04	3.04E-04	3.35E-04	4.15E-04	4.82E-04	4.77E-04	4.43E-04
9.0	4.58E-02	7.49E-04	1.57	0.00E+00	0.00E+00	2.11E-04	2.04E-04	2.03E-04	3.00E-04	3.27E-04	4.05E-04	4.77E-04	4.70E-04	4.37E-04
9.9	5.16E-02	8.98E-04	1.96	0.00E+00	0.00E+00	2.08E-04	2.00E-04	2.00E-04	2.98E-04	3.22E-04	3.99E-04	4.66E-04	4.63E-04	4.30E-04
10.9	5.80E-02	1.04E-04	2.37	0.00E+00	0.00E+00	2.08E-04	1.99E-04	2.00E-04	2.99E-04	3.20E-04	3.98E-04	4.65E-04	4.62E-04	4.29E-04
12.3	6.36E-02	1.24E-04	2.81	0.00E+00	0.00E+00	2.09E-04	2.01E-04	2.02E-04	2.99E-04	3.21E-04	3.97E-04	4.64E-04	4.61E-04	4.28E-04
16.2	3.62E-02	9.02E-04	3.22	0.00E+00	0.00E+00	2.08E-04	2.02E-04	2.05E-04	2.98E-04	3.21E-04	3.96E-04	4.63E-04	4.60E-04	4.27E-04
20.0	3.81E-02	1.04E-04	3.58	0.00E+00	0.00E+00	2.09E-04	2.04E-04	2.07E-04	2.99E-04	3.23E-04	3.98E-04	4.65E-04	4.62E-04	4.29E-04
24.9	3.80E-02	1.14E-04	4.07	0.00E+00	0.00E+00	2.09E-04	2.05E-04	2.08E-04	2.99E-04	3.24E-04	3.99E-04	4.66E-04	4.63E-04	4.30E-04
30.0	3.71E-02	1.17E-04	4.55	0.00E+00	0.00E+00	2.09E-04	2.07E-04	2.09E-04	2.99E-04	3.25E-04	4.00E-04	4.77E-04	4.77E-04	4.43E-04
39.3	3.99E-02	1.37E-04	5.13	0.00E+00	0.00E+00	2.09E-04	2.08E-04	2.09E-04	2.99E-04	3.26E-04	4.01E-04	4.78E-04	4.78E-04	4.44E-04
49.7	2.55E-02	1.37E-04	5.79	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
50.0	2.39E-02	1.62E-04	6.25	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
62.3	2.35E-02	1.76E-04	6.83	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
76.6	2.10E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
90.0	2.09E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
100.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
110.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
120.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
130.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
140.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
150.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
160.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
170.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
180.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
190.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
200.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
210.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
220.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
230.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
240.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
250.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
260.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
270.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
280.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
290.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
300.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
310.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
320.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
330.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
340.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
350.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
360.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
370.0	2.13E-02	1.04E-04	7.36	0.00E+00	0.00E+00	2.09E-04	2.09E-04	2.09E-04	2.99E-04	3.27E-04	4.02E-04	4.79E-04	4.79E-04	4.45E-04
380.0	2.13E-02	1.04E-04	7											

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPDFX COSMIC RAY ANALYSIS (SEALAR MINIMUM) FNR: AL  
 MODEL = RADIC-TIME-  
 LAT/DEC-NH= 120.470510001  
 IC= 26.682  
 6.3E-02 DEG/1.3E-03 4.13E-03  
 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY/MEV)

ENERGY	SHIELD THICKNESS (GM/CM <sup>2</sup> )										
	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.62	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03
44.62	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03	2.44E-03
50.34	2.78E-03	2.87E-03	2.84E-03	2.84E-03	2.84E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03
56.32	3.39E-03	3.25E-03									
68.37	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03	3.77E-03
72.26	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03	4.38E-03
81.49	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03
91.85	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03	5.15E-03
103.63	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03
116.86	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03	6.18E-03
134.72	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03
149.21	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03
149.60	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03
149.90	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03	7.05E-03
151.31	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03	7.13E-03
240.38	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02
271.04	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02
305.70	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02
344.77	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02
348.43	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03	9.79E-03
494.42	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03	9.25E-03
557.57	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03	8.56E-03
626.72	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03
709.09	7.22E-03	7.12E-03									
799.66	6.65E-03	6.59E-03	6.53E-03	6.48E-03	6.43E-03	6.38E-03	6.33E-03	6.28E-03	6.23E-03	6.18E-03	6.13E-03
901.76	5.88E-03	5.77E-03	5.64E-03	5.54E-03	5.44E-03	5.34E-03	5.24E-03	5.14E-03	5.04E-03	4.94E-03	4.84E-03
1017.00	6.02E-03	4.89E-03	4.80E-03	4.74E-03	4.66E-03	4.62E-03	4.58E-03	4.54E-03	4.50E-03	4.46E-03	4.01E-03
1146.50	4.33E-03	4.27E-03	4.21E-03	4.15E-03	4.09E-03	4.04E-03	4.01E-03	3.96E-03	3.92E-03	3.88E-03	3.84E-03
1293.20	3.62E-03	3.55E-03	3.51E-03	3.48E-03	3.46E-03	3.43E-03	3.41E-03	3.38E-03	3.35E-03	3.31E-03	3.26E-03
1458.50	3.00E-03	2.94E-03									
1644.80	2.66E-03	2.55E-03	2.51E-03								
1654.90	2.19E-03	2.15E-03	2.11E-03	2.07E-03	2.07E-03	2.04E-03	2.01E-03	1.99E-03	1.97E-03	1.95E-03	1.92E-03
201.80	1.88E-03	1.83E-03	1.82E-03								
2458.90	1.59E-03	1.54E-03	1.51E-03	1.48E-03	1.45E-03	1.42E-03	1.39E-03	1.36E-03	1.33E-03	1.30E-03	1.27E-03
2460.20	1.32E-03	1.31E-03	1.29E-03	1.27E-03	1.25E-03	1.23E-03	1.21E-03	1.19E-03	1.17E-03	1.15E-03	1.13E-03

TABLE 218

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: SI  
MODEL = HAPI; TIME = 1989-2-1; PERIOD= 1,8723

(ATOMIC NUM= 14; ATOMIC W= 28.09)

- 63.0 BEGx133e-1334 RM

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY/MEV/N) \*\*\*\*\*

MAGNETOSPHERICALLY ATTEN-

GATED ENERGY 0.01 0.03 0.05 0.07 0.10 0.15 0.20 0.30 0.50 0.80 1.0 1.5 2.0 3.0 5.0 10.0

EN- ERGY	UNATTEN- GATED	ATTEN- GATED	0.00E+00													
1.2	3.01E-02	2.43E-02	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
1.4	2.80E-02	2.15E-02	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
1.6	2.68E-02	2.07E-02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
1.8	2.87E-02	2.17E-02	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
2.0	3.15E-02	2.30E-02	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2.3	3.58E-02	2.76E-02	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
2.6	4.00E-02	3.44E-02	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
3.0	4.56E-02	4.22E-02	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
3.4	5.17E-02	5.22E-02	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
4.0	6.08E-02	6.24E-02	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
4.6	6.88E-02	7.94E-02	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
5.0	7.35E-02	1.05E-02	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
5.4	7.82E-02	1.29E-02	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
6.0	8.52E-02	1.39E-02	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
6.4	8.59E-02	1.39E-02	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
7.0	5.65E-02	1.56E-02	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
7.6	1.03E-01	1.74E-02	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
8.0	1.06E-01	1.83E-02	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
9.0	1.28E-01	2.09E-02	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
9.1	1.38E-01	2.10E-02	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
1.00	1.48E-01	2.24E-02	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
1.33	3.13E-01	2.97E-02	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17
1.62	1.41E-01	3.51E-02	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51	3.51
2.03	1.52E-01	4.05E-02	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2.09	1.48E-01	4.55E-02	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68
3.09	1.49E-01	4.54E-02	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55	5.55
3.07	1.32E-01	4.16E-02	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65
4.00	1.14E-01	4.14E-02	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
5.03	9.34E-02	3.67E-02	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73	6.73
6.69	7.03E-02	3.92E-02	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93	6.93
7.99	6.65E-02	4.92E-02	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
9.00	5.70E-02	4.95E-02	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
8.65	5.18E-02	4.95E-02	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
9.00	4.94E-02	2.36E-02	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
1.00	4.18E-02	2.06E-02	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17
1.147	3.25E-02	1.72E-02	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44
1.545	1.85E-02	1.12E-02	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44
2.000	1.18E-02	7.74E-03	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
2.129	1.06E-02	7.42E-03	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
2.977	5.68E-03	4.64E-03	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513	3.513

TABLE 22 A

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SCALAR MINIMUM) FOR: SI  
 WDFPL = BAND TIME= 1984\*200; PERIOD= 1\*723  
 ATOMIC-NUM= 14; ATOMIC-W= 28.09;  
 E3\*D DEG=1334.3334 KM

DIFFERENTIAL FLUX BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>\*DAY\*MEV/N)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.5E+62	8.23E-03	8.28E-03	8.51E-03	8.62E-03	8.75E-03	9.70E-03	1.03E-02	1.10E-02	1.27E-02	1.24E-02	1.07E-02
4.4E+62	6.33E-03	6.54E-03	6.91E-03	7.44E-03	7.96E-03	9.44E-03	1.05E-02	1.14E-02	1.22E-02	1.31E-02	1.15E-02
5.0E+62	4.32E-03	4.19E-03	4.27E-03	4.26E-03	4.29E-03	4.38E-03	4.45E-03	4.52E-03	4.55E-03	4.54E-03	4.25E-03
5.6E+62	3.29E-03										
6.4E+62	1.46E-02	1.47E-02									
7.2E+62	1.69E-02	1.73E-02	1.79E-02								
81.49	1.50E-02	1.43E-02	1.08E-02	1.98E-02							
91.49	2.08E-02	2.11E-02	2.12E-02	2.14E-02							
103.43	2.44E-02	2.42E-02	2.42E-02	2.43E-02							
116.46	2.44E-02	2.46E-02									
131.47	2.44E-02	2.45E-02									
148.46	2.43E-02	3.03E-02									
189.41	3.42E-02	3.48E-02	3.36E-02	3.08E-02							
213.45	4.10E-02	4.14E-02									
240.38	4.13E-02	4.21E-02									
347.98	4.03E-02	4.33E-02									
350.5	4.03E-02	4.37E-02									
344.74	4.24E-02	4.14E-02									
344.87	4.24E-02	4.09E-02									
430.43	3.62E-02	3.52E-02									
557.55	3.05E-02										
624.47	3.05E-02										
750.66	2.82E-02	2.77E-02									
901.79	2.59E-02	2.56E-02									
1017.00	1.96E-02	1.90E-02									
1293.30	1.41E-02	1.37E-02									
1458.50	1.15E-02	1.00E-02	1.00E-02	9.97E-03							
1644.80	8.51E-03	8.35E-03	8.35E-03	8.20E-03	8.05E-03	7.92E-03	7.92E-03	7.92E-03	7.92E-03	7.92E-03	7.92E-03
1854.90	7.23E-03	7.17E-03	7.17E-03	7.11E-03	7.06E-03	7.01E-03	7.01E-03	7.01E-03	7.01E-03	7.01E-03	7.01E-03
2074.90	6.18E-03	6.14E-03	6.14E-03	6.04E-03	5.99E-03	5.95E-03	5.95E-03	5.95E-03	5.95E-03	5.95E-03	5.95E-03
2354.90	5.15E-03	5.09E-03	5.09E-03	4.96E-03	4.93E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03
2664.20	5.15E-03	5.09E-03	5.09E-03	4.96E-03	4.93E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03	4.88E-03

TABLE 22 B

ORIGINAL PAGE IS  
OF POOR QUALITY

**TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR : P**  
**REFL = 1.89720 ; PERIOD = 1.6723**  
**(ATOMIC-TIME = 15 : ATOMIC-N = 30.98)**

**TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR:  
MODEL = FABRI; TIME = 1989-2-01; PERIOD = 1-8723  
(ATOMIC-CALC) = 15; ATOMIC-N = 30 • 98)**

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLE SIZE 2.2 DAYTONA VEN)

TABLE 23A

ORIGINAL PAGE IS  
OF POOR QUALITY

TRINEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: P  
MODEL = BARRI TIME 1959.2 O PERIOD= 1.923  
(ATOMIC NUM 15 ATOMIC W= 30.98)

-6.3+0 DEG 1334-1334 KM

DIFFERENTIAL FLUX EMITTING BEHIND SPHERICAL ALUMINUM SHELLS (PARTICLES/CM\*\*2 DAY MEVN)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.62	4.77E-04	4.88E-04	4.96E-04	5.06E-04	5.16E-04	5.91E-04	6.40E-04	6.736E-04	6.97E-04	6.10E-04	
44.68	5.74E-04	5.45E-04	5.35E-04	5.24E-04	5.15E-04	5.91E-04	6.55E-04	7.05E-04	7.95E-04	7.54E-04	
50.38	6.19E-04	6.22E-04	6.25E-04	6.24E-04	6.23E-04	7.07E-04	7.68E-04	8.24E-04	9.34E-04	9.55E-04	
56.82	7.35E-04	7.25E-04	7.39E-04	7.48E-04	7.45E-04	8.13E-04	8.41E-04	8.51E-04	9.19E-04	9.65E-04	
64.07	8.36E-04	8.47E-04	8.51E-04	8.56E-04	8.53E-04	9.77E-04	9.77E-04	9.77E-04	9.77E-04	9.77E-04	
72.26	9.68E-04	9.77E-04	9.67E-04	9.59E-04	9.47E-04	9.90E-04	1.04E-03	1.05E-03	1.15E-03	1.15E-03	
81.49	1.05E-03	1.11E-03	1.19E-03	1.08E-03	1.08E-03	1.13E-03	1.11E-03	1.11E-03	1.19E-03	1.28E-03	
91.89	1.16E-03	1.21E-03	1.21E-03	1.21E-03	1.21E-03	1.22E-03	1.22E-03	1.22E-03	1.29E-03	1.32E-03	
102.63	1.39E-03	1.38E-03	1.37E-03	1.37E-03	1.37E-03	1.42E-03	1.42E-03	1.42E-03	1.47E-03	1.47E-03	
116.86	1.49E-03	1.53E-03	1.53E-03	1.53E-03	1.53E-03	1.54E-03	1.56E-03	1.57E-03	1.63E-03	1.54E-03	
131.78	1.65E-03	1.69E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.67E-03	
148.62	1.85E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.90E-03	1.91E-03	1.91E-03	1.87E-03	
167.60	1.96E-03	1.96E-03	2.01E-03	2.01E-03	2.01E-03	2.02E-03	2.06E-03	2.06E-03	2.09E-03	2.09E-03	
189.01	2.18E-03	2.18E-03	2.20E-03	2.20E-03	2.20E-03	2.21E-03	2.23E-03	2.23E-03	2.17E-03	2.17E-03	
215.15	2.34E-03	2.34E-03	2.37E-03	2.37E-03	2.37E-03	2.38E-03	2.38E-03	2.38E-03	2.38E-03	2.38E-03	
240.38	2.44E-03	2.44E-03	2.44E-03								
271.08	2.44E-03	2.44E-03	2.44E-03								
305.02	2.44E-03	2.44E-03	2.44E-03								
344.47	2.44E-03	2.44E-03	2.44E-03								
388.7	2.30E-03	2.19E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	
438.4	2.15E-03	2.15E-03	2.15E-03								
498.4	2.00E-03	2.00E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03	
557.5	1.80E-03	1.80E-03	1.80E-03								
628.7	1.77E-03	1.77E-03	1.77E-03								
719.0	1.67E-03	1.67E-03	1.67E-03								
759.6	1.44E-03	1.44E-03	1.44E-03								
804.7	1.33E-03	1.33E-03	1.33E-03								
1017.0	1.11E-03	1.11E-03	1.11E-03								
1145.9	5.62E-04	5.62E-04	5.62E-04								
1293.3	8.09E-04	7.54E-04	7.76E-04	7.76E-04	7.76E-04	7.67E-04	7.67E-04	7.67E-04	7.57E-04	7.30E-04	
1458.5	6.79E-04	6.55E-04	6.55E-04	6.55E-04	6.55E-04	6.55E-04	6.44E-04	6.44E-04	6.39E-04	6.19E-04	
1644.8	5.78E-04	5.77E-04	5.77E-04	5.77E-04	5.77E-04	5.77E-04	5.49E-04	5.49E-04	5.37E-04	5.22E-04	
1854.9	4.86E-04	4.77E-04	4.68E-04	4.68E-04	4.68E-04	4.68E-04	4.53E-04	4.47E-04	4.42E-04	4.31E-04	
2091.9	4.11E-04	4.11E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.97E-04	3.97E-04	3.91E-04	3.87E-04	
2368.5	3.53E-04	3.53E-04	3.53E-04	3.53E-04	3.53E-04	3.53E-04	3.39E-04	3.37E-04	3.33E-04	3.21E-04	
2660.20	2.94E-04	2.94E-04	2.94E-04	2.94E-04	2.94E-04	2.94E-04	2.82E-04	2.82E-04	2.70E-04	2.65E-04	

TABLE 238

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: S  
MODEL = BARR; TIME = 1989.0; PERIOD = 1.8723  
(ATOMIC-NUM= 16; ATOMIC-W= 32.07)

63°0-DEG+13.34-13.34 KR

\*\*\*\*\* MAGNETOSPHERICALLY DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS. PARTICLES/CMS<sup>2</sup>DAY\*MEV/N

EN-	UNATTEN-	ATTEN-	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12	6.4E-03	5.2E-04	0.20	0.00E+00	0.00E+00	2.9E-04	2.77E-04	3.0E-04	4.75E-04	5.0E-04	6.21E-04	7.20E-04	6.85E-04	5.93E-04
14	6.0E-03	5.1E-04	0.20	0.00E+00	0.00E+00	2.6E-04	2.61E-04	2.72E-04	4.48E-04	4.75E-04	5.86E-04	6.70E-04	6.40E-04	5.60E-04
16	6.0E-03	5.1E-04	0.20	0.00E+00	0.00E+00	2.6E-04	2.61E-04	2.72E-04	4.48E-04	4.75E-04	5.86E-04	6.70E-04	6.40E-04	5.60E-04
18	6.0E-03	5.1E-04	0.20	0.00E+00	0.00E+00	2.6E-04	2.61E-04	2.72E-04	4.48E-04	4.75E-04	5.86E-04	6.70E-04	6.40E-04	5.60E-04
20	6.7E-03	6.9E-04	0.20	0.00E+00	0.00E+00	2.37E-04	2.21E-04	2.48E-04	3.80E-04	4.03E-04	4.96E-04	5.75E-04	5.47E-04	4.74E-04
22	7.6E-03	8.0E-04	0.20	0.00E+00	0.00E+00	2.32E-04	2.37E-04	2.48E-04	3.80E-04	4.03E-04	4.96E-04	5.75E-04	5.47E-04	4.74E-04
23	7.6E-03	8.0E-04	0.20	0.00E+00	0.00E+00	2.32E-04	2.37E-04	2.48E-04	3.80E-04	4.03E-04	4.96E-04	5.75E-04	5.47E-04	4.74E-04
26	8.5E-03	9.5E-04	0.20	0.00E+00	0.00E+00	2.14E-04	2.05E-04	2.26E-04	3.44E-04	3.65E-04	4.49E-04	5.21E-04	4.70E-04	4.29E-04
30	9.7E-03	1.16E-03	0.20	0.00E+00	0.00E+00	2.04E-04	1.96E-04	2.22E-04	3.36E-04	3.65E-04	4.40E-04	5.10E-04	4.85E-04	4.20E-04
34	1.11E-02	1.37E-03	0.20	0.00E+00	0.00E+00	2.05E-04	1.95E-04	2.16E-04	3.27E-04	3.51E-04	4.27E-04	4.95E-04	4.71E-04	4.08E-04
40	1.30E-02	1.70E-03	0.20	0.00E+00	0.00E+00	2.01E-04	1.89E-04	2.11E-04	3.21E-04	3.44E-04	4.19E-04	4.86E-04	4.62E-04	4.00E-04
44	1.30E-02	1.70E-03	0.20	0.00E+00	0.00E+00	1.97E-04	1.86E-04	2.07E-04	3.15E-04	3.38E-04	4.11E-04	4.77E-04	4.53E-04	3.93E-04
50	1.57E-02	2.24E-03	0.20	0.00E+00	0.00E+00	1.88E-04	1.83E-04	2.00E-04	3.12E-04	3.35E-04	4.07E-04	4.73E-04	4.49E-04	3.89E-04
54	1.68E-02	2.44E-03	0.20	0.00E+00	0.00E+00	1.94E-04	1.94E-04	2.04E-04	3.10E-04	3.33E-04	4.05E-04	4.70E-04	4.47E-04	3.87E-04
60	1.83E-02	2.77E-03	0.20	0.00E+00	0.00E+00	1.95E-04	1.95E-04	2.05E-04	3.09E-04	3.32E-04	4.04E-04	4.69E-04	4.46E-04	3.96E-04
64	1.93E-02	2.77E-03	0.20	0.00E+00	0.00E+00	1.95E-04	1.95E-04	2.05E-04	3.10E-04	3.33E-04	4.06E-04	4.70E-04	4.47E-04	3.88E-04
70	2.00E-02	3.37E-03	0.20	0.00E+00	0.00E+00	1.97E-04	1.89E-04	2.09E-04	3.13E-04	3.36E-04	4.09E-04	4.74E-04	4.51E-04	3.91E-04
76	2.00E-02	3.37E-03	0.20	0.00E+00	0.00E+00	1.97E-04	1.89E-04	2.09E-04	3.13E-04	3.36E-04	4.09E-04	4.74E-04	4.51E-04	3.91E-04
80	2.28E-02	3.93E-03	0.20	0.00E+00	0.00E+00	2.00E-04	1.91E-04	2.15E-04	3.26E-04	3.46E-04	4.14E-04	4.80E-04	4.57E-04	4.02E-04
90	2.40E-02	4.44E-03	0.20	0.00E+00	0.00E+00	1.99E-04	1.91E-04	2.18E-04	3.21E-04	3.45E-04	4.13E-04	4.79E-04	4.56E-04	4.02E-04
91	2.44E-02	4.49E-03	0.20	0.00E+00	0.00E+00	1.95E-04	1.95E-04	2.11E-04	3.19E-04	3.59E-04	4.07E-04	4.73E-04	4.48E-04	3.89E-04
100	2.55E-02	4.86E-03	0.20	0.00E+00	0.00E+00	2.00E-04	2.01E-04	2.23E-04	3.17E-04	3.49E-04	4.15E-04	4.78E-04	4.50E-04	4.03E-04
109	2.61E-02	5.21E-03	0.20	0.00E+00	0.00E+00	2.05E-04	2.02E-04	2.24E-04	3.18E-04	3.52E-04	4.22E-04	4.82E-04	4.55E-04	4.05E-04
133	2.80E-02	6.37E-03	0.20	0.00E+00	0.00E+00	2.16E-04	2.31E-04	2.53E-04	3.73E-04	4.11E-04	4.86E-04	5.59E-04	5.32E-04	4.61E-04
162	3.21E-02	7.55E-03	0.20	0.00E+00	0.00E+00	2.45E-04	2.41E-04	2.61E-04	3.87E-04	4.11E-04	4.93E-04	5.78E-04	5.51E-04	4.78E-04
200	3.22E-02	7.69E-03	0.20	0.00E+00	0.00E+00	2.36E-04	2.36E-04	2.78E-04	3.98E-04	4.08E-04	5.02E-04	5.67E-04	5.66E-04	4.99E-04
249	3.71E-02	9.53E-03	0.20	0.00E+00	0.00E+00	2.46E-04	2.52E-04	2.57E-04	4.32E-04	4.53E-04	5.27E-04	6.10E-04	5.17E-04	4.27E-04
309	3.99E-02	9.93E-03	0.20	0.00E+00	0.00E+00	2.68E-04	2.79E-04	2.91E-04	4.56E-04	4.63E-04	5.39E-04	6.10E-04	5.65E-04	4.96E-04
313	2.99E-02	9.71E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.28E-04	2.41E-04	3.19E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
347	2.44E-02	8.91E-03	0.20	0.00E+00	0.00E+00	2.31E-04	2.28E-04	2.41E-04	3.19E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
400	2.44E-02	8.88E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
500	1.99E-02	7.88E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
509	1.56E-02	7.61E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
600	1.62E-02	7.09E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
700	1.82E-02	6.69E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
800	1.42E-02	5.60E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
905	1.05E-02	5.05E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
1000	8.65E-03	4.42E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
1147	6.52E-03	3.69E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
1545	4.05E-03	2.46E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
2000	2.55E-03	1.66E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
2129	2.72E-03	1.53E-03	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04
2977	1.22E-03	9.95E-04	0.20	0.00E+00	0.00E+00	2.32E-04	2.32E-04	2.41E-04	3.20E-04	3.32E-04	4.10E-04	4.71E-04	4.79E-04	4.23E-04

**TABLE 24 A**

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: S  
 MODEL: PARTRIDGE 1987; PERIOD: 1987-01-01 TO 1987-01-31  
 ATOMIC TIME: 16: AUTOMATIC  
 N=63,000 DEG 133.4 KM

ORIGINAL PAGE IS  
 OF POOR QUALITY

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY-MEV/N)

ENERGY	SHIELD THICKNESS (GM/CM <sup>2</sup> )								
	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0
59.62	1.79E-03	1.79E-03	1.85E-03	1.84E-03	1.87E-03	2.06E-03	2.26E-03	2.49E-03	2.65E-03
44.68	2.01E-03	2.06E-03	2.03E-03						
50.38	2.26E-03	2.34E-03	2.37E-03						
56.92	2.77E-03	2.73E-03	2.70E-03						
56.07	2.11E-03	2.14E-03	2.20E-03						
72.26	2.62E-03	2.67E-03	2.63E-03	2.66E-03	2.66E-03	2.66E-03	2.66E-03	2.66E-03	2.66E-03
61.49	4.03E-03	4.15E-03	4.55E-03	4.05E-03	4.05E-03	4.05E-03	4.05E-03	4.05E-03	4.05E-03
61.89	4.45E-03	4.52E-03							
103.83	1.82E-03	1.72E-03							
111.07	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03
124.19	2.34E-03	2.34E-03	2.34E-03	2.34E-03	2.34E-03	2.34E-03	2.34E-03	2.34E-03	2.34E-03
166.62	6.98E-03	7.10E-03	7.06E-03						
180.0	8.17E-03	8.17E-03	8.17E-03	8.17E-03	8.17E-03	8.17E-03	8.17E-03	8.17E-03	8.17E-03
211.15	8.31E-03	8.31E-03	8.31E-03	8.31E-03	8.31E-03	8.31E-03	8.31E-03	8.31E-03	8.31E-03
240.35	5.06E-03	5.06E-03	5.06E-03	5.06E-03	5.06E-03	5.06E-03	5.06E-03	5.06E-03	5.06E-03
277.98	6.22E-03	6.28E-03							
305.70	6.36E-03	6.34E-03	6.32E-03						
344.74	8.37E-03	8.31E-03	8.95E-03						
388.77	8.63E-03	8.58E-03							
438.43	8.16E-03	8.09E-03	8.05E-03						
492.42	7.70E-03	7.61E-03							
557.57	7.12E-03	7.06E-03							
628.87	6.52E-03	6.49E-03							
709.09	6.04E-03	5.93E-03	5.88E-03						
799.66	5.54E-03	5.48E-03	5.43E-03						
801.62	4.50E-03	4.49E-03	4.47E-03						
1.017.00	4.16E-03	4.06E-03							
1.446.00	3.71E-03	3.62E-03	3.55E-03						
1.429.30	3.70E-03	3.62E-03	3.54E-03						
1.445.80	3.51E-03	3.50E-03							
1.684.50	3.27E-03	3.27E-03	3.27E-03	3.27E-03	3.27E-03	3.27E-03	3.27E-03	3.27E-03	3.27E-03
1.855.00	3.25E-03	3.25E-03	3.25E-03	3.25E-03	3.25E-03	3.25E-03	3.25E-03	3.25E-03	3.25E-03
2.258.90	3.23E-03	3.23E-03	3.23E-03	3.23E-03	3.23E-03	3.23E-03	3.23E-03	3.23E-03	3.23E-03
2.660.20	1.10E-03	1.09E-03							

TABLE 24B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CL  
MODEL = BARR; TIME= 1989.2.0; PERIOD= 1.8723

(ATOMIC-NUM= 17; ATOMIC-W= 35.46)  
63.0 DEG/133.4 NM

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CH\*\*2\*DAY\*MEV/NI)

EN- ERGY	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12.1	1.28E-05	1.04E-06	0.00E+00	5.20E-07	3.53E-07	2.65E-07	1.77E-07	1.56E-07	1.72E-07	2.36E-07	2.48E-07	2.38E-07	2.235E-07
14.1	1.44E-05	9.06E-07	0.00E+00	4.89E-07	3.33E-07	2.50E-07	1.65E-07	1.45E-07	1.62E-07	2.14E-07	2.235E-07	2.12E-07	2.09E-07
16.0	8.75E-05	6.02E-07	0.00E+00	4.66E-07	3.13E-07	2.35E-07	1.56E-07	1.36E-07	1.52E-07	2.04E-07	2.09E-07	2.07E-07	2.07E-07
18.7	4.9E-06	7.12E-07	0.00E+00	4.32E-07	2.93E-07	2.21E-07	1.47E-07	1.20E-07	1.44E-07	1.86E-07	1.97E-07	1.98E-07	1.98E-07
20.6	5.15E-06	6.51E-07	0.00E+00	4.04E-07	2.79E-07	2.01E-07	1.41E-07	1.19E-07	1.34E-07	1.78E-07	1.88E-07	1.88E-07	1.88E-07
23.6	6.03E-06	6.33E-07	0.00E+00	3.74E-07	2.66E-07	2.00E-07	1.34E-07	1.19E-07	1.34E-07	1.77E-07	1.79E-07	1.79E-07	1.79E-07
26.5	6.04E-06	6.30E-07	0.00E+00	3.73E-07	2.62E-07	2.00E-07	1.34E-07	1.19E-07	1.34E-07	1.77E-07	1.79E-07	1.79E-07	1.79E-07
30.5	2.12E-05	5.77E-07	0.00E+00	3.65E-07	2.56E-07	1.97E-07	1.24E-07	1.13E-07	1.24E-07	1.71E-07	1.75E-07	1.75E-07	1.75E-07
34.5	5.07E-05	6.12E-07	0.00E+00	3.53E-07	2.49E-07	1.81E-07	1.18E-07	1.05E-07	1.18E-07	1.62E-07	1.66E-07	1.66E-07	1.66E-07
40.4	4.99E-06	6.39E-07	0.00E+00	3.55E-07	2.54E-07	1.84E-07	1.18E-07	1.05E-07	1.18E-07	1.62E-07	1.66E-07	1.66E-07	1.66E-07
-45.4	4.89E-06	6.79E-07	0.00E+00	3.58E-07	2.50E-07	1.74E-07	1.16E-07	1.05E-07	1.16E-07	1.59E-07	1.63E-07	1.63E-07	1.63E-07
50.4	4.89E-06	6.79E-07	0.00E+00	3.55E-07	2.56E-07	1.72E-07	1.15E-07	1.05E-07	1.15E-07	1.58E-07	1.61E-07	1.61E-07	1.61E-07
54.5	5.05E-06	7.02E-07	0.00E+00	3.50E-07	2.44E-07	1.71E-07	1.14E-07	1.05E-07	1.14E-07	1.57E-07	1.60E-07	1.60E-07	1.60E-07
60.5	5.22E-06	7.32E-07	0.00E+00	3.29E-07	2.35E-07	1.64E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.59E-07	1.59E-07	1.59E-07
64.5	5.23E-06	7.34E-07	0.00E+00	3.29E-07	2.35E-07	1.64E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.59E-07	1.59E-07	1.59E-07
70.5	5.34E-06	8.08E-07	0.00E+00	3.20E-07	2.34E-07	1.64E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.61E-07	1.61E-07	1.61E-07
76.5	5.44E-06	9.22E-07	0.00E+00	3.15E-07	2.38E-07	1.68E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.62E-07	1.62E-07	1.62E-07
80.5	6.65E-06	1.12E-06	0.00E+00	3.01E-07	2.43E-07	1.73E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.62E-07	1.62E-07	1.62E-07
-90.6	6.75E-06	1.15E-06	0.00E+00	2.96E-07	2.46E-07	1.76E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.62E-07	1.62E-07	1.62E-07
94.6	6.65E-06	1.17E-06	0.00E+00	2.91E-07	2.41E-07	1.71E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.61E-07	1.61E-07	1.61E-07
100.6	6.87E-06	1.17E-06	0.00E+00	2.86E-07	2.36E-07	1.66E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.61E-07	1.61E-07	1.61E-07
112.6	7.02E-06	1.17E-06	0.00E+00	2.81E-07	2.31E-07	1.61E-07	1.13E-07	1.05E-07	1.13E-07	1.56E-07	1.61E-07	1.61E-07	1.61E-07
122.6	8.79E-05	2.19E-06	0.00E+00	2.94E-07	3.41E-07	2.10E-07	1.99E-07	1.79E-07	2.10E-07	2.13E-07	1.94E-07	1.94E-07	1.94E-07
209.1	1.01E-05	3.88E-06	0.00E+00	3.32E-07	2.62E-07	2.16E-07	2.05E-07	1.85E-07	2.05E-07	1.42E-07	1.42E-07	1.42E-07	1.42E-07
249.1	1.06E-05	3.88E-06	0.00E+00	3.65E-07	2.62E-07	2.26E-07	2.05E-07	1.85E-07	2.05E-07	1.49E-07	1.49E-07	1.49E-07	1.49E-07
309.1	1.11E-05	3.44E-06	0.00E+00	3.77E-07	2.73E-07	2.38E-07	2.14E-07	1.94E-07	2.14E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07
313.1	1.11E-05	3.22E-06	0.00E+00	3.90E-07	2.86E-07	2.40E-07	2.14E-07	1.95E-07	2.14E-07	1.55E-07	1.55E-07	1.55E-07	1.55E-07
397.1	1.11E-05	3.19E-06	0.00E+00	3.91E-07	3.01E-07	2.43E-07	2.14E-07	1.95E-07	2.14E-07	1.56E-07	1.56E-07	1.56E-07	1.56E-07
400.1	1.11E-05	3.19E-06	0.00E+00	3.94E-07	3.04E-07	2.43E-07	2.14E-07	1.95E-07	2.14E-07	1.56E-07	1.56E-07	1.56E-07	1.56E-07
500.1	1.01E-05	4.32E-06	0.00E+00	5.24E-07	4.04E-07	3.41E-07	2.78E-07	1.90E-07	2.78E-07	1.60E-07	1.85E-07	1.85E-07	1.85E-07
509.1	1.02E-05	4.38E-06	0.00E+00	5.27E-07	4.16E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
600.1	9.65E-06	4.03E-06	0.00E+00	5.18E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
660.1	9.13E-06	3.98E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
780.1	8.88E-06	3.98E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
800.1	7.99E-06	3.53E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
865.1	7.95E-06	3.53E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
900.1	7.05E-06	3.38E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
1000.1	6.22E-06	3.08E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
1147.1	5.2E-05	4.18E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
1545.1	3.44E-06	2.05E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
2000.1	2.42E-06	1.95E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07
-2977.1	1.39E-06	1.01E-06	0.00E+00	5.05E-07	4.07E-07	3.44E-07	2.81E-07	1.94E-07	2.81E-07	1.61E-07	1.86E-07	1.86E-07	1.86E-07

TABLE 25A

TOPX CRIMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CL  
 MODEL= BIRBI TIME = 1982.200 PERIOD = 1.8723  
 ATOMIC NUMBER = 17  
 ATOMIC PERIOD = 35.46  
 DEG/LAT=133.1334 KM = 35.46

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY-MEV/N)

SHIELD THICKNESS (GM/CM <sup>2</sup> )											
ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.9E-62	6.27E-07	6.09E-07	6.12E-07	6.08E-07	5.87E-07	5.76E-07	5.95E-07	6.58E-07	7.95E-07	8.74E-07	8.52E-07
4.4E-62	6.52E-07	6.55E-07	6.35E-07	6.22E-07	6.37E-07	6.68E-07	6.91E-07	7.08E-07	8.68E-07	9.48E-07	8.23E-07
5.0E-62	6.88E-07	7.00E-07	6.96E-07	6.76E-07	6.84E-07	6.91E-07	7.08E-07	7.54E-07	9.67E-07	1.05E-06	1.02E-06
5.6E-62	7.63E-07	1.09E-06	1.16E-06	1.13E-06							
6.4E-62	8.58E-07	8.42E-07	8.42E-07	8.54E-07	8.59E-07	8.64E-07	8.64E-07	8.64E-07	1.16E-06	1.21E-06	1.21E-06
7.2E-62	9.52E-07	1.21E-06	1.29E-06	1.29E-06							
8.1E-62	1.05E-06	1.38E-06	1.48E-06	1.48E-06							
9.1E-62	1.16E-06	1.57E-06	1.63E-06	1.63E-06							
1.04E-61	1.34E-06	1.83E-06	1.83E-06	1.83E-06							
1.13E-61	1.51E-06	1.86E-06	1.96E-06	1.96E-06							
1.24E-61	1.73E-06	2.11E-06	2.11E-06	2.11E-06							
1.34E-61	1.94E-06	2.24E-06	2.33E-06	2.33E-06							
1.44E-61	2.16E-06	2.46E-06	2.46E-06	2.46E-06							
1.67E-60	2.41E-06	2.51E-06	2.51E-06	2.51E-06							
1.99E-60	2.49E-06	2.64E-06	2.64E-06	2.64E-06							
2.41E-59	2.82E-06	3.07E-06	3.07E-06	3.07E-06							
2.94E-58	3.26E-06	3.52E-06	3.52E-06	3.52E-06							
3.27E-58	3.79E-06	4.08E-06	4.08E-06	4.08E-06							
3.89E-58	4.37E-06	4.76E-06	4.76E-06	4.76E-06							
4.38E-58	4.99E-06	5.35E-06	5.35E-06	5.35E-06							
4.99E-58	5.62E-06	6.01E-06	6.01E-06	6.01E-06							
5.57E-57	6.32E-06	6.70E-06	6.70E-06	6.70E-06							
6.26E-57	7.15E-06	7.82E-06	7.82E-06	7.82E-06							
7.09E-57	8.11E-06	8.87E-06	8.87E-06	8.87E-06							
7.99E-56	9.15E-06	9.91E-06	9.91E-06	9.91E-06							
9.01E-56	1.03E-05	1.14E-05	1.14E-05	1.14E-05							
1.01E-55	1.17E-05	1.26E-05	1.26E-05	1.26E-05							
1.14E-55	1.32E-05	1.44E-05	1.44E-05	1.44E-05							
1.45E-55	1.61E-05	1.79E-05	1.79E-05	1.79E-05							
1.85E-55	1.91E-05	2.08E-05	2.08E-05	2.08E-05							
2.09E-55	2.14E-05	2.24E-05	2.24E-05	2.24E-05							
2.36E-55	2.35E-05	2.46E-05	2.46E-05	2.46E-05							
2.60E-55	2.70E-05	2.87E-05	2.87E-05	2.87E-05							

ORIGINAL PAGE IS  
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TABLE 25B

ORIGINAL PAGE IS  
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TOPEX, COSMIC RAY, ANALYSIS (SOLAR MINIMUM) FOR: AR  
MODEL = BARR: TIME = 1989-2-0: PERIOD = 1: 8723  
(ATOMIC- NUM = 18: ATOMIC -W = 39-94)  
-63.6 DEG/-33.6 DEG/+33.6 DEG

EX. COSMIC RAY ANALYSIS (SOLAR MINIMUM) - FOR: 4  
MODEL: BARRIC TIME: 1989-2-00: PERIOD: 1-8723  
(ATOMIC NUMBER: 1A: ATOMIC WEIGHT: 10-GA)

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS. (PARTICLES/CMS<sup>-2</sup>DAY<sup>-1</sup>MEV/N)

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: AR MODEL = BARRI TIME= 1959-200 PERIOD= 1-8723 (ATOMIC #= 18; ATOMIC W= 39-94) - 63-0 DEG/133-0 +33-0 KM									
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CRS*2DAY*MEV/N)									
SHIELD THICKNESS (GMCM***2)									
EN-	UNATTEN-	ATTEN-	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30
ERGY	UATED	UATED							
1.2	2.3E-05	1.54E-06	0.20	0.00E+00	0.00E+00	1.03E-06	7.01E-07	5.25E-07	3.44E-07
14	1.55E-05	1.69E-06	0.23	0.00E+00	0.00E+00	0.69E-07	4.95E-07	3.42E-07	2.45E-07
16	1.63E-05	1.55E-06	0.25	-6.0E+00	-6.0E+00	0.21E-07	4.52E-07	3.07E-07	4.62E-07
18	1.40E-05	1.33E-06	0.29	0.00E+00	0.00E+00	0.56E-07	4.37E-07	2.58E-07	4.36E-07
20	1.22E-05	2.32E-06	0.32	0.00E+00	0.00E+00	0.33E-07	4.18E-07	2.44E-07	3.87E-07
23	1.13E-05	1.18E-06	0.36	0.00E+00	0.00E+00	7.78E-07	3.51E-07	2.44E-07	3.70E-07
26	1.05E-05	1.18E-06	0.41	0.00E+00	0.00E+00	7.34E-07	5.35E-07	2.44E-07	3.71E-07
30	9.75E-06	1.18E-06	0.46	0.00E+00	0.00E+00	7.18E-07	5.68E-07	2.44E-07	3.51E-07
34	9.48E-06	1.4E-06	0.52	0.00E+00	0.00E+00	6.96E-07	5.68E-07	2.44E-07	3.16E-07
46	9.12E-06	1.29E-06	0.59	0.00E+00	0.00E+00	6.80E-07	5.68E-07	2.44E-07	3.08E-07
50	9.01E-06	1.32E-06	0.65	0.00E+00	0.00E+00	6.54E-07	5.45E-07	2.24E-07	3.09E-07
60	9.58E-06	1.47E-06	0.95	0.00E+00	0.00E+00	4.43E-07	3.84E-07	2.19E-07	3.05E-07
70	1.03E-05	1.54E-06	1.08	0.00E+00	0.00E+00	6.02E-07	3.84E-07	2.19E-07	3.05E-07
76	1.07E-05	1.64E-06	1.17	0.00E+00	0.00E+00	4.56E-07	3.94E-07	2.19E-07	3.05E-07
80	1.09E-05	1.81E-06	1.37	0.00E+00	0.00E+00	6.47E-07	4.46E-07	3.37E-07	3.20E-07
90	1.16E-05	2.19E-06	1.54	0.00E+00	0.00E+00	5.55E-07	4.51E-07	3.42E-07	3.20E-07
91	1.16E-05	2.16E-06	1.96	0.00E+00	0.00E+00	4.43E-07	5.58E-07	3.52E-07	3.30E-07
100	1.22E-05	2.36E-06	2.21	0.00E+00	0.00E+00	6.16E-07	4.69E-07	2.01E-07	2.04E-07
109	1.28E-05	2.57E-06	2.50	0.00E+00	0.00E+00	6.29E-07	4.80E-07	2.19E-07	2.12E-07
113	1.45E-05	3.50E-06	2.81	0.00E+00	0.00E+00	4.44E-07	3.83E-07	2.20E-07	2.13E-07
162	1.64E-05	4.39E-06	3.18	0.00E+00	0.00E+00	5.58E-07	5.99E-07	3.77E-07	3.77E-07
202	1.87E-05	6.74E-06	3.58	0.00E+00	0.00E+00	6.78E-07	5.51E-07	3.16E-07	3.16E-07
249	1.97E-05	5.94E-06	3.99	0.00E+00	0.00E+00	7.9E-07	6.02E-07	2.44E-07	2.44E-07
90	2.07E-05	6.74E-06	4.55	0.00E+00	0.00E+00	6.20E-07	5.24E-07	4.52E-07	4.52E-07
93	2.07E-05	6.76E-06	5.13	0.00E+00	0.00E+00	4.38E-07	5.13E-07	4.26E-07	4.26E-07
95	2.07E-05	6.78E-06	5.53	0.00E+00	0.00E+00	7.32E-07	4.76E-07	3.12E-07	3.12E-07
100	2.09E-05	6.98E-06	5.78	0.00E+00	0.00E+00	6.07E-07	5.98E-07	3.09E-07	3.09E-07
109	2.17E-05	7.78E-06	7.03	0.00E+00	0.00E+00	6.62E-07	6.05E-07	3.06E-07	3.06E-07
113	2.17E-05	7.80E-06	7.36	0.00E+00	0.00E+00	6.02E-07	5.95E-07	3.06E-07	3.06E-07
159	1.56E-05	9.95E-06	8.59	0.00E+00	0.00E+00	6.05E-06	7.84E-07	3.07E-07	3.07E-07
160	1.80E-05	7.57E-06	9.03	0.00E+00	0.00E+00	6.32E-06	5.91E-07	3.06E-07	3.06E-07
166	1.70E-05	7.43E-06	10.56	0.00E+00	0.00E+00	6.71E-06	5.94E-07	3.06E-07	3.06E-07
170	1.65E-05	7.22E-06	11.51	0.00E+00	0.00E+00	6.20E-07	6.15E-07	4.62E-07	4.62E-07
185	1.43E-05	3.23E-06	13.42	0.00E+00	0.00E+00	4.37E-07	4.52E-07	4.36E-07	4.36E-07
197	1.31E-05	6.53E-06	15.15	0.00E+00	0.00E+00	6.56E-07	6.17E-07	3.75E-07	3.75E-07
200	1.17E-05	5.78E-06	17.08	0.00E+00	0.00E+00	6.08E-07	7.71E-07	3.90E-07	3.90E-07
211	2.17E-05	5.15E-06	21.27	0.00E+00	0.00E+00	9.74E-07	6.83E-07	4.45E-07	4.45E-07
215	1.47J-05	5.71E-06	24.49	0.00E+00	0.00E+00	9.05E-07	8.47E-07	6.31E-07	6.31E-07
219	2.18E-05	4.48E-06	27.62	0.00E+00	0.00E+00	9.36E-07	8.47E-07	6.31E-07	6.31E-07
297	2.18E-05	2.80E-06	35.15	0.00E+00	0.00E+00	9.01E-06	9.01E-06	1.28E-06	1.28E-06

TABLE 264

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TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: AR  
MUNFL = 200; BARR; TIME= 1984-2-01; PERIOD= 1.8723  
(ATOMIC-NUM= 18; ATOMIC-W= 39.94)

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY/HEV/N) \*\*\*\*\*

SHIELD THICKNESS (GM/CM <sup>2</sup> )	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
29.62	1.17E-06	1.14E-06	1.14E-06	1.14E-06	1.14E-06	1.09E-06	1.07E-06	1.11E-06	1.23E-06	1.49E-06	1.59E-06
34.68	1.22E-06	1.21E-06	1.21E-06	1.21E-06	1.21E-06	1.19E-06	1.17E-06	1.17E-06	1.23E-06	1.72E-06	1.90E-06
40.38	1.26E-06	1.31E-06	1.30E-06	1.26E-06	1.26E-06	1.30E-06	1.32E-06	1.32E-06	1.41E-06	1.80E-06	1.96E-06
56.82	1.45E-06	1.51E-06	1.41E-06	1.45E-06	1.45E-06	1.45E-06	1.52E-06	1.52E-06	1.65E-06	2.04E-06	2.12E-06
64.07	1.56E-06	1.57E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06	1.62E-06	1.62E-06	1.65E-06	2.26E-06	2.31E-06
72.26	1.79E-06	1.77E-06	1.77E-06	1.78E-06	1.78E-06	1.82E-06	1.82E-06	1.82E-06	2.02E-06	2.40E-06	2.54E-06
81.49	1.57E-06	2.01E-06	2.01E-06	1.95E-06	1.95E-06	1.95E-06	2.07E-06	2.07E-06	2.27E-06	2.62E-06	2.78E-06
91.89	2.16E-06	2.20E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.29E-06	2.29E-06	2.54E-06	2.94E-06	3.04E-06
103.63	2.57E-06	2.59E-06	2.58E-06	2.58E-06	2.58E-06	2.61E-06	2.75E-06	2.80E-06	2.95E-06	3.29E-06	3.47E-06
116.86	2.83E-06	2.92E-06	2.94E-06	2.94E-06	2.94E-06	2.97E-06	2.97E-06	3.12E-06	3.28E-06	3.66E-06	3.66E-06
131.79	3.24E-06	3.33E-06	3.36E-06	3.37E-06	3.37E-06	3.40E-06	3.41E-06	3.49E-06	3.60E-06	3.93E-06	3.98E-06
148.62	3.76E-06	3.85E-06	3.83E-06	3.85E-06	3.85E-06	3.87E-06	3.90E-06	3.93E-06	4.05E-06	4.23E-06	4.18E-06
167.60	4.04E-06	4.12E-06	4.12E-06	4.19E-06	4.19E-06	4.21E-06	4.35E-06	4.37E-06	4.72E-06	4.72E-06	4.8E-06
189.01	4.66E-06	4.75E-06	4.75E-06	4.76E-06	4.76E-06	4.78E-06	4.84E-06	4.84E-06	4.92E-06	4.92E-06	4.93E-06
213.15	5.26E-06	5.35E-06	5.39E-06	5.41E-06	5.41E-06	5.38E-06	5.37E-06	5.41E-06	5.42E-06	5.45E-06	5.21E-06
240.38	5.63E-06	5.64E-06	5.67E-06	5.68E-06	5.68E-06	5.71E-06	5.72E-06	5.73E-06	5.82E-06	5.75E-06	5.8E-06
271.08	6.08E-06	6.14E-06	6.11E-06	6.13E-06	6.13E-06	6.14E-06	6.19E-06	6.19E-06	6.23E-06	6.13E-06	5.83E-06
304.70	6.58E-06	6.65E-06	6.67E-06	6.66E-06	6.66E-06	6.65E-06	6.64E-06	6.64E-06	6.68E-06	6.49E-06	6.70E-06
344.74	6.87E-06	6.93E-06	6.93E-06	6.97E-06	6.97E-06	7.00E-06	7.04E-06	7.03E-06	7.06E-06	7.04E-06	6.99E-06
398.77	7.19E-06	7.22E-06	7.24E-06	7.22E-06	7.22E-06	7.25E-06	7.29E-06	7.29E-06	7.26E-06	7.26E-06	6.48E-06
438.3	7.44E-06	7.46E-06	7.46E-06	7.46E-06	7.46E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06	6.35E-06
499.42	7.59E-06	7.60E-06	7.60E-06	7.59E-06	6.35E-06						
557.57	7.47E-06	7.45E-06	7.44E-06	7.42E-06	7.42E-06	7.42E-06	7.42E-06	7.42E-06	7.42E-06	6.54E-06	6.16E-06
616.09	7.32E-06	7.02E-06	6.29E-06	6.29E-06	6.29E-06	6.29E-06	6.76E-06	6.76E-06	6.44E-06	6.44E-06	6.34E-06
709.96	6.60E-06	6.61E-06	6.61E-06	6.52E-06	6.52E-06	6.52E-06	6.47E-06	6.47E-06	6.42E-06	6.36E-06	6.15E-06
904.96	6.65E-06	6.66E-06	6.66E-06	6.90E-06	6.90E-06	6.90E-06	6.84E-06	6.84E-06	6.78E-06	6.86E-06	5.435E-06
1017.00	5.57E-06	5.46E-06	5.46E-06	5.39E-06	5.39E-06	5.35E-06	5.35E-06	5.25E-06	5.22E-06	5.19E-06	5.07E-06
1146.90	5.06E-06	4.99E-06	4.99E-06	4.93E-06	4.93E-06	4.88E-06	4.88E-06	4.80E-06	4.77E-06	4.74E-06	4.52E-06
1290.30	4.47E-06	4.39E-06	4.39E-06	4.30E-06	4.30E-06	4.30E-06	4.30E-06	4.27E-06	4.24E-06	4.17E-06	4.09E-06
1458.50	3.99E-06	3.93E-06	3.93E-06	3.90E-06	3.90E-06	3.87E-06	3.87E-06	3.83E-06	3.82E-06	3.78E-06	3.66E-06
1664.80	3.57E-06	3.52E-06	3.52E-06	3.50E-06	3.50E-06	3.47E-06	3.47E-06	3.41E-06	3.39E-06	3.31E-06	3.14E-06
1884.90	3.16E-06	3.14E-06	3.14E-06	3.08E-06	3.08E-06	3.04E-06	3.04E-06	3.01E-06	2.98E-06	2.90E-06	2.86E-06
2031.80	3.08E-06	3.00E-06	3.00E-06	2.78E-06	2.78E-06	2.75E-06	2.75E-06	2.73E-06	2.72E-06	2.67E-06	2.56E-06
-4356.90	3.49E-06	2.44E-06	2.44E-06	2.43E-06	2.43E-06	2.43E-06	2.43E-06	2.41E-06	2.37E-06	2.32E-06	2.24E-06
2660.20	2.11E-06	2.11E-06	2.11E-06	2.09E-06	2.09E-06	2.06E-06	2.06E-06	2.02E-06	1.97E-06	1.94E-06	1.91E-06

TABLE 26B

8

8

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: K  
MODEL = BARRI; TIME: 1980-2-01; PERIOD: 1-8723  
(ATOMIC NUMBER 191 ATOMIC-NO. 39-10)  
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--- 63.0 DEG 133.45 E 33.48 ---

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MAGNETOSPHERICALLY  
Differential Flux Emerging Behind Spherical Aluminum Shields (Particles/cm<sup>2</sup>/Day/Mev/N)

EN-	UNATTEN-	ATTEN-	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0	
12	1.54E-05	1.25E-06	0.20	0.00E+00	0.00E+00	5.96E-07	4.52E-07	3.52E-07	2.23E-07	3.03E-07	3.14E-07	3.25E-07	3.37E-07	3.48E-07	
14	1.55E-05	1.26E-06	0.23	0.00E+00	0.00E+00	5.92E-07	3.94E-07	3.10E-07	2.10E-07	2.40E-07	2.44E-07	2.46E-07	2.48E-07	2.50E-07	
16	1.56E-05	1.27E-06	0.29	0.00E+00	0.00E+00	5.86E-07	3.66E-07	2.97E-07	2.07E-07	2.19E-07	2.27E-07	2.31E-07	2.35E-07	2.37E-07	
18	1.57E-05	1.28E-06	0.39	0.00E+00	0.00E+00	5.72E-07	3.45E-07	2.83E-07	2.02E-07	2.15E-07	2.21E-07	2.25E-07	2.29E-07	2.32E-07	
20	1.58E-05	1.29E-06	0.56	0.00E+00	0.00E+00	5.59E-07	3.22E-07	2.69E-07	1.97E-07	2.11E-07	2.19E-07	2.23E-07	2.29E-07	2.35E-07	
23	1.59E-05	1.31E-06	0.74	0.00E+00	0.00E+00	5.42E-07	3.02E-07	2.56E-07	1.92E-07	2.05E-07	2.17E-07	2.21E-07	2.27E-07	2.33E-07	
26	1.61E-05	1.32E-06	0.97	0.00E+00	0.00E+00	5.25E-07	2.82E-07	2.42E-07	1.87E-07	2.00E-07	2.14E-07	2.18E-07	2.24E-07	2.30E-07	
30	1.62E-05	1.33E-06	1.21	0.00E+00	0.00E+00	5.08E-07	2.62E-07	2.29E-07	1.82E-07	1.93E-07	2.04E-07	2.10E-07	2.16E-07	2.22E-07	
34	1.63E-05	1.34E-06	1.47	0.00E+00	0.00E+00	4.93E-07	2.43E-07	2.19E-07	1.77E-07	1.84E-07	1.95E-07	2.01E-07	2.07E-07	2.13E-07	
40	1.64E-05	1.35E-06	1.92	0.00E+00	0.00E+00	4.76E-07	2.24E-07	2.09E-07	1.72E-07	1.79E-07	1.85E-07	1.91E-07	1.97E-07	2.03E-07	
46	1.65E-05	1.36E-06	2.44	0.00E+00	0.00E+00	4.59E-07	2.05E-07	1.99E-07	1.67E-07	1.74E-07	1.81E-07	1.87E-07	1.93E-07	1.99E-07	
50	1.66E-05	1.37E-06	3.07	0.00E+00	0.00E+00	4.42E-07	1.87E-07	1.89E-07	1.62E-07	1.69E-07	1.76E-07	1.82E-07	1.88E-07	1.94E-07	
54	1.67E-05	1.38E-06	3.87	0.00E+00	0.00E+00	4.25E-07	1.69E-07	1.79E-07	1.57E-07	1.64E-07	1.71E-07	1.77E-07	1.83E-07	1.89E-07	
60	1.68E-05	1.39E-06	4.87	0.00E+00	0.00E+00	4.08E-07	1.51E-07	1.69E-07	1.53E-07	1.60E-07	1.67E-07	1.73E-07	1.79E-07	1.85E-07	
64	1.69E-05	1.40E-06	5.99E-07	1.08	0.00E+00	0.00E+00	3.93E-07	1.33E-07	1.57E-07	1.49E-07	1.56E-07	1.63E-07	1.70E-07	1.77E-07	1.84E-07
70	1.70E-05	1.41E-06	1.08E-06	1.21	0.00E+00	0.00E+00	3.76E-07	1.15E-07	1.49E-07	1.30E-07	1.37E-07	1.44E-07	1.51E-07	1.58E-07	1.65E-07
76	1.71E-05	1.42E-06	1.71E-06	1.37	0.00E+00	0.00E+00	3.59E-07	9.77E-08	1.39E-07	1.20E-07	1.27E-07	1.34E-07	1.41E-07	1.48E-07	1.55E-07
80	1.72E-05	1.43E-06	2.33E-06	1.44	0.00E+00	0.00E+00	3.43E-07	8.40E-08	1.29E-07	1.12E-07	1.19E-07	1.26E-07	1.33E-07	1.40E-07	1.47E-07
90	1.73E-05	1.37E-06	3.7E-06	1.74	0.00E+00	0.00E+00	3.26E-07	7.03E-08	1.19E-07	1.05E-07	1.12E-07	1.19E-07	1.26E-07	1.33E-07	1.40E-07
91	1.74E-05	1.39E-06	5.99E-06	1.96	0.00E+00	0.00E+00	3.10E-07	5.76E-08	1.09E-07	9.77E-08	1.06E-07	1.14E-07	1.21E-07	1.28E-07	1.35E-07
100	1.75E-05	1.41E-06	1.25E-05	2.21	0.00E+00	0.00E+00	2.94E-07	4.52E-08	9.99E-08	8.22E-08	8.95E-08	9.70E-08	1.04E-07	1.11E-07	1.18E-07
109	1.76E-05	1.42E-06	1.55E-05	2.40	0.00E+00	0.00E+00	2.82E-07	3.90E-08	8.79E-08	7.79E-08	8.44E-08	9.19E-08	9.89E-08	1.05E-07	1.12E-07
113	1.77E-05	1.43E-06	2.12E-05	2.51	0.00E+00	0.00E+00	2.65E-07	3.39E-08	7.99E-08	7.07E-08	7.74E-08	8.49E-08	9.24E-08	9.94E-08	1.06E-07
119	1.78E-05	1.44E-06	2.73E-05	3.21	0.00E+00	0.00E+00	2.42E-07	2.97E-08	7.19E-08	6.37E-08	7.03E-08	7.79E-08	8.54E-08	9.24E-08	9.94E-08
122	1.79E-05	1.45E-06	3.42E-05	3.58	0.00E+00	0.00E+00	2.19E-07	2.57E-08	6.47E-08	5.77E-08	6.43E-08	7.19E-08	7.94E-08	8.64E-08	9.34E-08
129	1.80E-05	1.46E-06	4.12E-05	4.04	0.00E+00	0.00E+00	1.94E-07	2.19E-08	5.80E-08	5.10E-08	5.76E-08	6.50E-08	7.29E-08	7.99E-08	8.69E-08
130	1.81E-05	1.47E-06	4.73E-05	4.59	0.00E+00	0.00E+00	1.70E-07	1.83E-08	5.19E-08	4.50E-08	5.15E-08	5.95E-08	6.75E-08	7.45E-08	8.15E-08
131	1.82E-05	1.48E-06	5.35E-05	5.15	0.00E+00	0.00E+00	1.42E-07	1.48E-08	4.59E-08	3.80E-08	4.46E-08	5.26E-08	6.06E-08	6.76E-08	7.46E-08
132	1.83E-05	1.49E-06	5.97E-05	5.67	0.00E+00	0.00E+00	1.14E-07	1.13E-08	4.09E-08	3.21E-08	3.97E-08	4.76E-08	5.56E-08	6.26E-08	6.96E-08
133	1.84E-05	1.50E-06	6.59E-05	6.19	0.00E+00	0.00E+00	8.62E-08	8.02E-09	3.61E-08	2.72E-08	3.49E-08	4.26E-08	5.05E-08	5.75E-08	6.45E-08
134	1.85E-05	1.51E-06	7.21E-05	6.71	0.00E+00	0.00E+00	6.23E-08	5.93E-09	3.22E-08	2.33E-08	3.01E-08	3.78E-08	4.54E-08	5.24E-08	5.94E-08
135	1.86E-05	1.52E-06	7.83E-05	7.32	0.00E+00	0.00E+00	4.00E-08	4.00E-09	2.83E-08	1.94E-08	2.60E-08	3.38E-08	4.14E-08	4.84E-08	5.54E-08
136	1.87E-05	1.53E-06	8.45E-05	7.94	0.00E+00	0.00E+00	2.00E-08	2.10E-09	2.44E-08	1.65E-08	2.31E-08	3.08E-08	3.84E-08	4.54E-08	5.24E-08
137	1.88E-05	1.54E-06	9.07E-05	8.56	0.00E+00	0.00E+00	1.00E-08	1.20E-09	1.65E-08	1.40E-08	1.72E-08	2.48E-08	3.24E-08	3.94E-08	4.64E-08
138	1.89E-05	1.55E-06	9.69E-05	9.18	0.00E+00	0.00E+00	5.00E-09	7.00E-10	9.65E-09	8.60E-09	9.25E-09	1.28E-08	1.94E-08	2.64E-08	3.34E-08
139	1.90E-05	1.56E-06	1.03E-04	9.80	0.00E+00	0.00E+00	2.00E-09	4.00E-10	6.65E-09	6.20E-09	6.85E-09	9.40E-09	1.34E-08	1.84E-08	2.54E-08
140	1.91E-05	1.57E-06	1.09E-04	1.041	0.00E+00	0.00E+00	1.00E-09	2.00E-10	3.65E-09	3.20E-09	3.45E-09	5.00E-09	7.00E-09	9.00E-09	1.10E-08
141	1.92E-05	1.58E-06	1.15E-04	1.092	0.00E+00	0.00E+00	5.00E-10	1.00E-10	1.65E-09	1.40E-09	1.85E-09	3.00E-09	5.00E-09	7.00E-09	9.00E-09
142	1.93E-05	1.59E-06	1.21E-04	1.153	0.00E+00	0.00E+00	2.00E-10	4.00E-11	7.65E-10	6.20E-10	7.85E-10	1.40E-09	2.40E-09	4.40E-09	6.40E-09
143	1.94E-05	1.60E-06	1.27E-04	1.214	0.00E+00	0.00E+00	1.00E-10	2.00E-11	3.65E-10	2.40E-10	3.45E-10	6.00E-10	1.00E-09	2.00E-09	4.00E-09
144	1.95E-05	1.61E-06	1.33E-04	1.275	0.00E+00	0.00E+00	5.00E-11	1.00E-11	1.65E-10	1.20E-10	1.85E-10	3.00E-10	6.00E-10	1.20E-09	2.20E-09
145	1.96E-05	1.62E-06	1.39E-04	1.336	0.00E+00	0.00E+00	2.00E-11	4.00E-12	7.65E-11	5.20E-11	7.85E-11	1.40E-10	2.40E-10	4.40E-10	6.40E-10
146	1.97E-05	1.63E-06	1.45E-04	1.437	0.00E+00	0.00E+00	1.00E-11	2.00E-12	3.65E-11	2.40E-11	3.45E-11	6.00E-11	1.00E-10	2.00E-10	4.00E-10
147	1.98E-05	1.64E-06	1.51E-04	1.538	0.00E+00	0.00E+00	5.00E-12	1.00E-12	1.65E-11	1.20E-11	1.85E-11	3.00E-11	6.00E-11	1.20E-10	2.20E-10
148	1.99E-05	1.65E-06	1.57E-04	1.639	0.00E+00	0.00E+00	2.00E-12	4.00E-13	7.65E-12	5.20E-12	7.85E-12	1.40E-11	2.40E-11	4.40E-11	6.40E-11
149	2.00E-05	1.66E-06	1.63E-04	1.740	0.00E+00	0.00E+00	1.00E-12	2.00E-13	3.65E-12	2.40E-12	3.45E-12	6.00E-12	1.00E-11	2.00E-11	4.00E-11
150	2.01E-05	1.67E-06	1.69E-04	1.841	0.00E+00	0.00E+00	5.00E-13	1.00E-13	1.65E-12	1.20E-12	1.85E-12	3.00E-12	6.00E-12	1.20E-11	2.20E-11
151	2.02E-05	1.68E-06	1.75E-04	1.942	0.00E+00	0.00E+00	2.00E-13	4.00E-14	7.65E-13	5.20E-13	7.85E-13	1.40E-12	2.40E-12	4.40E-12	6.40E-12
152	2.03E-05	1.69E-06	1.81E-04	2.043	0.00E+00	0.00E+00	1.00E-13	2.00E-14	3.65E-13	2.40E-13	3.45E-13	6.00E-13	1.00E-12	2.00E-12	4.00E-12
153	2.04E-05	1.70E-06	1.87E-04	2.144	0.00E+00	0.00E+00	5.00E-14	1.00E-14	1.65E-13	1.20E-13	1.85E-13	3.00E-13	6.00E-13	1.20E-12	2.20E-12
154	2.05E-05	1.71E-06	1.93E-04	2.245	0.00E+00	0.00E+00	2.00E-14	4.00E-15	7.65E-14	5.20E-14	7.85E-14	1.40E-13	2.40E-13	4.40E-13	6.40E-13
155	2.06E-05	1.72E-06	1.99E-04	2.346	0.00E+00	0.00E+00	1.00E-14	2.00E-15	3.65E-14	2.40E-14	3.45E-14	6.00E-14	1.00E-13	2.00E-13	4.00E-13
156	2.07E-05	1.73E-06	2.05E-04	2.447	0.00E+00	0.00E+00	5.00E-15	1.00E-15	1.65E-14	1.20E-14	1.85E-14	3.00E-14	6.00E-14	1.20E-13	2.20E-13
157	2.08E-05	1.74E-06	2.11E-04	2.548	0.00E+00	0.00E+00	2.00E-15	4.00E-16	7.65E-15	5.20E-15	7.85E-15	1.40E-14	2.40E-14	4.40E-14	6.40E-14
158	2.09E-05	1.75E-06	2.17E-04	2.649	0.00E+00	0.00E+00	1.00E-15	2.00E-16	3.65E-15	2.40E-15	3.45E-15	6.00E-15	1.00E-14	2.00E-14	4.00E-14
159	2.10E-05	1.76E-06	2.23E-04	2.750	0.00E+00	0.00E+00	5.00E-16	1.00E-							

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE E 27 B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CA  
 MODEL: BARRI TIME: 1089.200 PERIOD: 1.6723  
 (ATOMIC-NUM= 201; ATOMIC-WE= 40.08)  
 6300 DEG/1334-1334-NEW

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY/MEV/N)

SHIELD THICKNESS (GM/CM <sup>2</sup> )									
	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0
EN-UNATTEN- ERGY	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50
12.0	3.93E-05	3.19E-06	0.20	0.00E+00	0.00E+00	1.53E-06	1.0BE-06	8.64E-07	6.12E-07
14.0	3.92E-05	2.78E-06	0.23	0.00E+00	0.00E+00	1.45E-06	1.02E-06	8.15E-07	6.04E-07
16.0	2.30E-05	2.18E-06	0.25	0.00E+00	0.00E+00	1.36E-06	9.57E-07	7.66E-07	5.34E-07
18.0	2.30E-05	2.18E-06	0.29	0.00E+00	0.00E+00	1.28E-06	9.09E-07	7.20E-07	5.05E-07
20.0	2.00E-05	2.09E-06	0.32	0.00E+00	0.00E+00	1.15E-06	8.10E-07	6.88E-07	5.01E-07
23.0	1.85E-05	1.94E-06	0.36	0.00E+00	0.00E+00	1.08E-06	7.65E-07	6.53E-07	4.52E-07
26.0	1.73E-05	1.93E-06	0.40	0.00E+00	0.00E+00	1.02E-06	7.13E-07	6.12E-07	4.04E-07
30.0	6.90E-05	1.83E-06	0.46	0.00E+00	0.00E+00	9.65E-07	6.73E-07	6.28E-07	4.39E-07
34.0	5.95E-05	1.88E-06	0.52	0.00E+00	0.00E+00	9.05E-07	6.32E-07	5.92E-07	4.04E-07
40.0	5.00E-05	1.96E-06	0.59	0.00E+00	0.00E+00	8.50E-07	5.98E-07	5.62E-07	3.72E-07
46.0	5.09E-05	1.98E-06	0.67	0.00E+00	0.00E+00	8.70E-07	6.00E-07	5.82E-07	3.19E-07
50.0	5.09E-05	2.16E-06	0.75	0.00E+00	0.00E+00	9.54E-07	6.80E-07	6.95E-07	4.49E-07
54.0	5.44E-05	2.24E-06	0.85	0.00E+00	0.00E+00	9.43E-07	6.70E-07	6.90E-07	4.56E-07
60.0	1.60E-05	2.42E-06	0.95	0.00E+00	0.00E+00	9.37E-07	6.64E-07	6.85E-07	4.50E-07
64.0	1.64E-05	2.53E-06	1.08	0.00E+00	0.00E+00	9.25E-07	6.62E-07	6.83E-07	4.50E-07
70.0	1.70E-05	2.75E-06	1.21	0.00E+00	0.00E+00	9.27E-07	6.63E-07	6.82E-07	4.50E-07
76.0	1.77E-05	2.98E-06	1.37	0.00E+00	0.00E+00	9.30E-07	6.66E-07	6.85E-07	4.53E-07
80.0	1.80E-05	3.13E-06	1.54	0.00E+00	0.00E+00	9.34E-07	6.71E-07	6.89E-07	4.57E-07
89.0	1.90E-05	3.51E-06	1.74	0.00E+00	0.00E+00	9.42E-07	6.78E-07	6.95E-07	5.05E-07
91.0	1.91E-05	3.55E-06	1.96	0.00E+00	0.00E+00	9.50E-07	6.89E-07	6.90E-07	5.09E-07
100.0	2.11E-05	3.98E-06	2.21	0.00E+00	0.00E+00	9.62E-07	6.70E-07	6.90E-07	5.09E-07
109.0	2.11E-05	4.22E-06	2.42	0.00E+00	0.00E+00	9.64E-07	6.70E-07	6.90E-07	5.09E-07
133.0	2.38E-05	5.42E-06	2.81	0.00E+00	0.00E+00	9.24E-07	7.40E-07	5.87E-07	4.19E-07
162.0	2.70E-05	6.72E-06	3.17	0.00E+00	0.00E+00	9.44E-07	7.61E-07	6.21E-07	4.46E-07
200.0	3.0E-05	8.19E-06	3.58	0.00E+00	0.00E+00	9.69E-07	7.88E-07	6.45E-07	4.73E-07
249.0	3.2E-05	9.75E-06	4.04	0.00E+00	0.00E+00	9.97E-07	8.25E-07	6.74E-07	4.84E-07
349.0	3.49E-05	1.09E-05	4.55	0.00E+00	0.00E+00	1.03E-06	7.99E-07	5.08E-07	4.69E-07
313.0	3.40E-05	1.11E-05	5.13	0.00E+00	0.00E+00	1.06E-06	8.25E-07	7.37E-07	5.34E-07
397.0	3.08E-05	1.23E-05	5.79	0.00E+00	0.00E+00	1.11E-06	8.66E-07	7.76E-07	5.63E-07
400.0	3.08E-05	2.3E-05	6.55	0.00E+00	0.00E+00	1.2E-06	9.75E-07	8.03E-07	5.55E-07
500.0	2.5E-05	2.8E-05	7.36	0.00E+00	0.00E+00	1.2E-06	9.75E-07	8.03E-07	5.55E-07
509.0	2.2E-05	2.8E-05	8.30	0.00E+00	0.00E+00	1.02E-06	1.15E-06	1.02E-06	8.04E-07
600.0	2.0E-05	2.9E-05	9.36	0.00E+00	0.00E+00	1.17E-06	1.22E-06	1.12E-06	8.04E-07
709.0	2.0E-05	2.9E-05	1.056	0.00E+00	0.00E+00	1.25E-06	1.05E-06	9.74E-07	9.19E-07
900.0	2.0E-05	2.6E-05	1.134	0.00E+00	0.00E+00	1.26E-06	1.14E-06	9.99E-07	7.15E-07
865.0	2.4E-05	1.17E-05	1.07	0.00E+00	0.00E+00	1.22E-06	1.03E-06	8.26E-07	4.44E-07
1000.0	1.92E-05	9.49E-06	1.09	0.00E+00	0.00E+00	1.27E-06	1.07E-06	9.85E-07	4.91E-07
1147.0	1.60E-05	9.46E-06	1.21	0.00E+00	0.00E+00	1.27E-06	1.12E-06	1.02E-06	9.43E-07
1545.0	1.06E-05	6.32E-06	1.24	0.00E+00	0.00E+00	1.27E-06	1.12E-06	1.02E-06	9.43E-07
2000.0	7.49E-06	4.87E-06	2.7	0.00E+00	0.00E+00	1.27E-06	1.12E-06	1.02E-06	9.43E-07
2120.0	6.83E-06	4.59E-06	3.145	0.00E+00	0.00E+00	1.27E-06	1.12E-06	1.02E-06	9.43E-07
2977.0	3.97E-06	3.25E-06	35.13	0.00E+00	0.00E+00	1.27E-06	1.12E-06	1.02E-06	9.43E-07

TABLE 28 A

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CA  
 MODEL = BARR; TIME = 1985.2; PERIOD = 1.8723  
 ATOMIC-NUKE = 43.08E  
 63.0 DEG/133.4-133.4 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/C 4\*2\*DAY/MEV/N)

SHIELD THICKNESS (GM/CM<sup>2</sup>)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.20	0.50	1.0	3.0	5.0	10.0
3.9-6.2	1.91E-06	1.88E-06	1.85E-06	1.83E-06	1.77E-06	1.81E-06	1.85E-06	2.04E-06	2.52E-06	2.73E-06	2.62E-06
4.4-6.8	1.91E-06	1.92E-06	1.92E-06	1.92E-06	1.92E-06	1.92E-06	1.92E-06	2.04E-06	2.52E-06	2.73E-06	2.62E-06
5.0-3.8	1.41E-06	1.66E-06	2.06E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06	2.47E-06	2.95E-06	2.95E-06	2.83E-06
5.5-4.8	1.37E-06	2.01E-06	2.36E-06	2.36E-06	2.36E-06	2.36E-06	2.36E-06	2.46E-06	2.94E-06	2.94E-06	2.83E-06
5.6-4.07	1.57E-06	2.55E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	2.77E-06	3.27E-06	3.27E-06	3.17E-06
6.4-0.7	1.55E-06	2.55E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	2.87E-06	3.27E-06	3.27E-06	3.17E-06
7.2-2.6	2.93E-06	2.94E-06	2.94E-06	2.94E-06	2.94E-06	2.94E-06	2.94E-06	3.01E-06	3.44E-06	3.44E-06	3.27E-06
81.49	3.26E-06	3.20E-06	3.24E-06	3.24E-06	3.24E-06	3.24E-06	3.24E-06	3.39E-06	3.47E-06	3.47E-06	3.20E-06
91.89	3.57E-06	3.27E-06	3.63E-06	3.63E-06	3.63E-06	3.63E-06	3.63E-06	3.80E-06	3.97E-06	3.97E-06	3.20E-06
103.63	4.21E-06	3.62E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.42E-06	4.67E-06	4.67E-06	4.51E-06
116.86	4.21E-06	4.47E-06	5.17E-06	5.17E-06	5.15E-06						
131.75	5.21E-06	5.49E-06	5.57E-06	5.57E-06	5.57E-06	5.57E-06	5.57E-06	5.93E-06	6.49E-06	6.49E-06	6.42E-06
148.62	6.19E-06	6.33E-06	6.34E-06	6.34E-06	6.34E-06	6.34E-06	6.34E-06	6.37E-06	6.54E-06	6.54E-06	6.42E-06
167.60	6.67E-06	6.82E-06	6.88E-06	6.91E-06	6.91E-06	6.91E-06	6.91E-06	7.02E-06	7.49E-06	7.49E-06	7.14E-06
189.01	7.64E-06	7.84E-06	7.84E-06	7.84E-06	7.84E-06	7.84E-06	7.84E-06	8.02E-06	8.02E-06	8.02E-06	8.17E-06
213.15	8.71E-06	8.92E-06	8.97E-06	8.98E-06	8.92E-06						
271.08	5.27E-06	5.29E-06	5.32E-06	5.35E-06	5.35E-06	5.35E-06	5.35E-06	5.42E-06	5.42E-06	5.42E-06	5.42E-06
3.92.0	1.08E-05	1.08E-05	1.09E-05	9.31E-06							
3.43.24	1.43E-05	1.44E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.46E-05	1.46E-05	1.46E-05	1.46E-05
3.88.43	1.22E-05	1.23E-05									
5.51.57	1.23E-05										
6.22.4.9	1.20E-05	1.19E-05									
7.02.0.9	1.05E-05										
7.92.7.0	1.01E-05										
8.04.7.0	1.01E-05										
1.03.0.0	6.16E-06	6.14E-06									
1.29.3.0	7.34E-06										
1.45.5.0	6.55E-06	6.44E-06	6.39E-06	6.35E-06	6.32E-06	6.32E-06	6.32E-06	6.28E-06	6.24E-06	6.24E-06	6.23E-06
1.64.8.0	5.82E-06	5.82E-06	5.82E-06	5.74E-06	5.66E-06	5.66E-06	5.66E-06	5.58E-06	5.55E-06	5.55E-06	5.53E-06
1.94.9.0	5.19E-06	4.87E-06	4.82E-06	4.82E-06	4.49E-06						
2.09.1.80	4.62E-06	4.62E-06	4.51E-06	4.51E-06	4.51E-06	4.51E-06	4.51E-06	4.48E-06	4.46E-06	4.46E-06	4.30E-06
2.23.6.60	4.04E-06	3.93E-06	3.93E-06	3.93E-06	3.63E-06						
2.66.0.20	3.55E-06	3.47E-06	3.42E-06	3.42E-06	3.42E-06	3.42E-06	3.42E-06	3.23E-06	3.12E-06	3.12E-06	1.94E-06

TABLE 28B

ORIGINAL PAGE IS  
OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: SC  
MODEL 2 BAND TIME: 1989.2.01 REFILE: 1.8723  
(ATOMIC-NUM: 21; ATOMIC-C-N: 44-96)

63.0 DEG/133.4-133.4-104

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/S/CM<sup>2</sup>/DAY/MEV/N) \*\*\*\*\*

MAGNETOSPHERICALLY ATTEN-

UATED ENERGY 0.01

0.03

0.05

0.07

0.10

0.15

0.30

0.50

1.0

3.0

5.0

10.0

EN-	UNATTEN-	ATTEN-	SHIELD THICKNESS (cm/Cm <sup>2</sup> sec <sup>-2</sup> )	SC
12	9.39E-06	7.62E-07	0.20 0.00F+00	3.90E-07 2.74E-07 2.17E-07 1.51E-07 1.44E-07 1.50E-07 2.12E-07 2.24E-07
14	7.66E-06	6.65E-07	0.23 0.00E+00	3.68E-07 2.59E-07 2.05E-07 1.40E-07 1.33E-07 1.30E-07 2.05E-07 2.15E-07
16	6.46E-06	5.98E-07	0.25 0.00E+00	3.46E-07 2.42E-07 1.92E-07 1.30E-07 1.24E-07 1.21E-07 1.99E-07 2.09E-07
18	5.44E-06	5.28E-07	0.28 0.00E+00	3.25E-07 2.28E-07 1.81E-07 1.20E-07 1.14E-07 1.11E-07 1.86E-07 1.96E-07
20	4.61E-06	4.62E-07	0.32 0.00E+00	3.05E-07 2.15E-07 1.71E-07 1.10E-07 1.04E-07 1.02E-07 1.76E-07 1.86E-07
22	4.11E-06	4.02E-07	0.36 0.00E+00	2.85E-07 2.04E-07 1.62E-07 1.00E-07 9.45E-08 9.25E-08 1.67E-07 1.77E-07
26	4.02E-06	3.72E-07	0.41 0.00E+00	2.65E-07 1.99E-07 1.52E-07 9.80E-08 9.15E-08 9.05E-08 1.55E-07 1.65E-07
30	3.82E-06	3.42E-07	0.46 0.00E+00	2.45E-07 1.85E-07 1.42E-07 9.20E-08 8.60E-08 8.50E-08 1.47E-07 1.57E-07
34	3.72E-06	3.12E-07	0.51 0.00E+00	2.35E-07 1.75E-07 1.34E-07 8.60E-08 8.00E-08 7.90E-08 1.42E-07 1.52E-07
40	3.55E-06	2.92E-07	0.59 0.00E+00	2.15E-07 1.65E-07 1.24E-07 8.00E-08 7.40E-08 7.30E-08 1.38E-07 1.48E-07
46	3.55E-06	2.72E-07	0.65 0.00E+00	2.05E-07 1.55E-07 1.14E-07 7.40E-08 6.80E-08 6.70E-08 1.34E-07 1.44E-07
50	3.58E-06	5.18E-07	0.75 0.00E+00	2.41E-07 1.71E-07 1.36E-07 9.60E-08 8.90E-08 8.80E-08 1.40E-07 1.50E-07
54	3.62E-06	5.37E-07	0.85 0.00E+00	2.38E-07 1.68E-07 1.35E-07 9.50E-08 8.70E-08 8.60E-08 1.39E-07 1.49E-07
60	3.88E-06	5.70E-07	0.95 0.00E+00	2.30E-07 1.77E-07 1.34E-07 9.44E-08 8.72E-08 8.62E-08 1.38E-07 1.48E-07
64	3.52E-06	6.04E-07	1.08 0.00E+00	2.25E-07 1.66E-07 1.33E-07 9.40E-08 8.68E-08 8.58E-08 1.36E-07 1.46E-07
70	4.01E-06	6.55E-07	1.21 0.00E+00	2.31E-07 1.66E-07 1.34E-07 9.43E-08 8.79E-08 8.69E-08 1.39E-07 1.49E-07
76	4.22E-06	7.11E-07	1.37 0.00E+00	2.38E-07 1.66E-07 1.35E-07 9.50E-08 8.87E-08 8.77E-08 1.40E-07 1.50E-07
80	4.30E-06	7.44E-07	1.46 0.00E+00	2.35E-07 1.67E-07 1.36E-07 9.58E-08 8.96E-08 8.86E-08 1.41E-07 1.51E-07
94	4.56E-06	8.46E-07	1.74 0.00E+00	6.98E-07 1.69E-07 1.36E-07 9.67E-08 9.06E-08 8.96E-08 1.44E-07 1.54E-07
91	4.56E-06	8.46E-07	1.96 0.00E+00	5.79E-08 2.38E-07 1.71E-07 1.36E-07 9.82E-08 9.92E-08 1.44E-07 1.54E-07
100	4.78E-06	9.24E-07	2.50 0.00E+00	1.76E-07 2.48E-07 1.74E-07 1.41E-07 1.01E-07 1.02E-07 1.35E-07 1.45E-07
109	5.07E-06	9.24E-07	2.50 0.00E+00	2.37E-07 2.37E-07 1.78E-07 1.45E-07 1.02E-07 1.02E-07 1.36E-07 1.46E-07
133	5.70E-06	1.22E-06	2.81 0.00E+00	5.76E-07 2.50E-07 1.88E-07 1.48E-07 1.06E-07 1.06E-07 1.51E-07 1.61E-07
162	6.44E-06	1.61E-06	3.17 0.00E+00	4.3E-07 2.50E-07 1.88E-07 1.48E-07 1.06E-07 1.06E-07 1.55E-07 1.65E-07
200	7.34E-06	1.96E-06	3.58 0.00E+00	3.0E-07 2.50E-07 1.92E-07 1.50E-07 1.08E-07 1.08E-07 1.59E-07 1.69E-07
247	7.77E-06	2.33E-06	4.04 0.00E+00	2.1E-07 2.45E-07 2.05E-07 1.60E-07 1.10E-07 1.10E-07 1.64E-07 1.74E-07
364	8.18E-06	2.59E-06	4.55 0.00E+00	1.60E-07 2.49E-07 2.09E-07 1.64E-07 1.14E-07 1.14E-07 1.69E-07 1.79E-07
313	8.17E-06	2.66E-06	5.13 0.00E+00	3.92E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
397	8.17E-06	2.66E-06	5.13 0.00E+00	4.57E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
460	8.17E-06	2.94E-06	6.53 0.00E+00	4.00E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
500	7.00E-06	3.09E-06	9.00 0.00E+00	3.00E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
509	7.00E-06	3.09E-06	9.32 0.00E+00	2.93E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
660	6.66E-06	2.99E-06	1.03 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
700	6.47E-06	2.86E-06	1.13 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
800	5.77E-06	2.66E-06	1.23 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
900	5.13E-06	2.51E-06	1.55 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
1000	4.60E-06	2.47E-06	1.92 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
1147	3.82E-06	2.02E-06	2.11 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
1545	2.55E-06	1.51E-06	2.44 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
2000	1.79E-06	1.17E-06	2.77 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
2120	1.63E-06	1.10E-06	3.11 0.00E+00	2.95E-07 2.50E-07 2.11E-07 1.65E-07 1.18E-07 1.18E-07 1.83E-07 1.93E-07
2977	9.50E-07	7.77E-07	35.13 0.00E+00	4.29E-07 4.29E-07 4.29E-07 4.29E-07 4.29E-07 4.29E-07 4.29E-07 4.29E-07

TABLE 29A

TOPX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: SC  
 MODEL: PARDI; TIME: 1984.240; PERIOD: 1.6723  
 (ATOMIC-NUM: 21; ATOMIC-WE: 44.96)  
 63.0 DEG/1434-1434 KM

ORIGINAL PAGE IS  
 OF POOR QUALITY.

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/C\*\*\*2/DAY\*MEV/N)

ENERGY	SHIELD THICKNESS: (GM/CM <sup>2</sup> )									
	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.9E-02	4.56E-07	4.49E-07	4.44E-07	4.42E-07	4.3E-07	4.3E-07	4.3E-07	4.3E-07	4.3E-07	4.3E-07
4.4E-02	4.80E-07	4.77E-07	4.59E-07	4.61E-07	4.1E-07	4.1E-07	4.78E-07	4.78E-07	4.78E-07	4.78E-07
5.0E-02	5.66E-07	5.6E-07	5.6E-07	4.98E-07	5.19E-07	5.19E-07	5.19E-07	5.19E-07	5.19E-07	5.19E-07
5.6E-02	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07	5.5RE-07
6.4E-02	6.15E-07	6.19E-07	6.19E-07	6.27E-07	6.07E-07	6.07E-07	6.07E-07	6.07E-07	6.07E-07	6.07E-07
7.2E-02	7.0E-07	7.0E-07	7.0E-07	6.63E-07	6.93E-07	6.93E-07	6.93E-07	6.93E-07	6.93E-07	6.93E-07
8.1E-02	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07	7.9E-07
9.1E-02	8.79E-07	8.79E-07	8.79E-07	8.66E-07						
1.0E-01	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07	9.63E-07
1.1E-01	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06
1.3E-01	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06
1.67E-01	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06
2.40E-01	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06
2.71E-01	2.39E-06	2.39E-06	2.39E-06	2.41E-06						
3.05E-01	2.59E-06	2.59E-06	2.59E-06	2.61E-06						
3.44E-01	4.70E-06	4.70E-06	4.70E-06	4.75E-06						
3.68E-01	4.82E-06	4.82E-06	4.82E-06	4.94E-06						
4.38E-01	5.92E-06	5.92E-06	5.92E-06	2.98E-05						
4.94E-01	2.59E-06	2.59E-06	2.59E-06	2.32E-06						
5.57E-01	2.33E-06	2.33E-06	2.33E-06	2.31E-06						
6.28E-01	2.87E-06	2.87E-06	2.87E-06	2.85E-06						
7.09E-01	2.84E-06	2.84E-06	2.84E-06	2.91E-06						
7.99E-01	2.11E-06	2.11E-06	2.11E-06	2.07E-06						
6.61E-01	7.74E-06	7.74E-06	7.74E-06	3.58E-06						
1.017E-00	2.15E-06	2.15E-06	2.15E-06	2.14E-06						
1.146E-00	1.58E-06	1.58E-06	1.58E-06	1.55E-06						
1.293E-00	1.78E-06	1.78E-06	1.78E-06	1.72E-06						
1.458E-00	1.57E-06	1.57E-06	1.57E-06	1.52E-06						
1.644E-00	1.40E-06	1.40E-06	1.40E-06	1.39E-06						
1.854E-00	1.24E-06	1.24E-06	1.24E-06	1.20E-06						
2.091E-00	1.00E-06	1.00E-06	1.00E-06	9.97E-07						
2.358E-00	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07	9.97E-07
2.660E-00	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07	8.39E-07

TABLE 298

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: II  
MODEL = BARR; BARR: 1989-2001; PERIOD = 1-9723  
ATMOSPHERE = 27-40

ARRIVED: TIME= 1989.2.0: PERIOD= 1.9723

ATOM[(-y= 47.90)

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS. I. PARTICLES/CME'S 2-DAY ONE V/N

SHIELD THICKNESS (160/C <sub>400</sub> -2)									
EN- ERGY	ATTEN- UATED ENERGY	ATTEN- UATED ENERGY	ENERGY	0.01	0.03	0.05	0.07	0.10	0.130
12	2.165E-05	2.155E-05	0.20	0.00E+00	0.00E+00	1.14E-06	6.00E-07	6.39E-07	4.51E-07
14	1.665E-05	1.675E-05	0.22	0.00E+00	0.00E+00	1.08E-06	7.44E-07	7.45E-07	4.21E-07
16	1.241E-05	1.246E-05	0.24	0.00E+00	0.00E+00	9.55E-07	6.66E-07	6.52E-07	4.06E-07
18	9.55E-06	9.477E-06	0.26	0.00E+00	0.00E+00	9.00E-07	6.16E-07	6.02E-07	3.92E-07
20	7.139E-05	7.137E-05	0.28	0.00E+00	0.00E+00	7.95E-07	5.86E-07	5.80E-07	3.75E-07
22	5.131E-05	5.131E-05	0.30	0.00E+00	0.00E+00	7.05E-07	5.60E-07	5.54E-07	3.58E-07
24	3.512E-05	3.510E-05	0.32	0.00E+00	0.00E+00	6.25E-07	5.35E-07	5.28E-07	3.42E-07
26	2.179E-05	2.178E-05	0.34	0.00E+00	0.00E+00	5.55E-07	5.10E-07	5.02E-07	3.25E-07
28	1.130E-05	1.130E-05	0.36	0.00E+00	0.00E+00	4.95E-07	4.81E-07	4.73E-07	3.10E-07
30	6.085E-06	6.085E-06	0.38	0.00E+00	0.00E+00	4.42E-07	4.31E-07	4.23E-07	2.95E-07
32	3.410E-05	3.410E-05	0.40	0.00E+00	0.00E+00	3.95E-07	3.86E-07	3.78E-07	2.78E-07
34	1.650E-05	1.650E-05	0.42	0.00E+00	0.00E+00	3.51E-07	3.42E-07	3.34E-07	2.58E-07
36	8.010E-06	8.010E-06	0.44	0.00E+00	0.00E+00	3.14E-07	3.05E-07	2.97E-07	2.38E-07
38	4.010E-05	4.010E-05	0.46	0.00E+00	0.00E+00	2.83E-07	2.74E-07	2.66E-07	2.18E-07
40	1.904E-05	1.902E-05	0.48	0.00E+00	0.00E+00	2.58E-07	2.50E-07	2.42E-07	1.90E-07
42	8.998E-06	8.998E-06	0.50	0.00E+00	0.00E+00	2.38E-07	2.30E-07	2.22E-07	1.72E-07
44	4.010E-05	4.008E-05	0.52	0.00E+00	0.00E+00	2.20E-07	2.12E-07	2.04E-07	1.54E-07
46	1.904E-05	1.902E-05	0.54	0.00E+00	0.00E+00	1.98E-07	1.90E-07	1.82E-07	1.34E-07
48	8.998E-06	8.998E-06	0.56	0.00E+00	0.00E+00	1.78E-07	1.70E-07	1.62E-07	1.16E-07
50	4.010E-05	4.008E-05	0.58	0.00E+00	0.00E+00	1.60E-07	1.52E-07	1.44E-07	1.00E-07
52	1.904E-05	1.902E-05	0.60	0.00E+00	0.00E+00	1.44E-07	1.36E-07	1.28E-07	8.40E-08
54	8.998E-06	8.998E-06	0.62	0.00E+00	0.00E+00	1.30E-07	1.22E-07	1.14E-07	7.80E-08
56	4.010E-05	4.008E-05	0.64	0.00E+00	0.00E+00	1.18E-07	1.10E-07	1.02E-07	6.20E-08
58	1.904E-05	1.902E-05	0.66	0.00E+00	0.00E+00	1.07E-07	9.9E-08	9.1E-08	5.60E-08
60	8.998E-06	8.998E-06	0.68	0.00E+00	0.00E+00	9.7E-08	8.9E-08	8.1E-08	4.00E-08
62	4.010E-05	4.008E-05	0.70	0.00E+00	0.00E+00	8.7E-08	7.9E-08	7.1E-08	3.40E-08
64	1.904E-05	1.902E-05	0.72	0.00E+00	0.00E+00	7.8E-08	7.0E-08	6.2E-08	2.80E-08
66	8.998E-06	8.998E-06	0.74	0.00E+00	0.00E+00	7.0E-08	6.2E-08	5.4E-08	2.20E-08
68	4.010E-05	4.008E-05	0.76	0.00E+00	0.00E+00	6.3E-08	5.5E-08	4.7E-08	1.60E-08
70	1.904E-05	1.902E-05	0.78	0.00E+00	0.00E+00	5.7E-08	4.9E-08	4.1E-08	1.00E-08
72	8.998E-06	8.998E-06	0.80	0.00E+00	0.00E+00	5.2E-08	4.4E-08	3.6E-08	8.0E-09
74	4.010E-05	4.008E-05	0.82	0.00E+00	0.00E+00	4.7E-08	4.0E-08	3.2E-08	6.0E-09
76	1.904E-05	1.902E-05	0.84	0.00E+00	0.00E+00	4.3E-08	3.9E-08	3.0E-08	4.0E-09
78	8.998E-06	8.998E-06	0.86	0.00E+00	0.00E+00	3.9E-08	3.7E-08	3.5E-08	2.0E-09
80	4.010E-05	4.008E-05	0.88	0.00E+00	0.00E+00	3.6E-08	3.4E-08	3.2E-08	1.4E-09
82	1.904E-05	1.902E-05	0.90	0.00E+00	0.00E+00	3.3E-08	3.1E-08	2.9E-08	1.0E-09
84	8.998E-06	8.998E-06	0.92	0.00E+00	0.00E+00	3.0E-08	2.8E-08	2.6E-08	6.0E-10
86	4.010E-05	4.008E-05	0.94	0.00E+00	0.00E+00	2.7E-08	2.5E-08	2.3E-08	3.0E-10
88	1.904E-05	1.902E-05	0.96	0.00E+00	0.00E+00	2.5E-08	2.3E-08	2.1E-08	1.6E-10
90	8.998E-06	8.998E-06	0.98	0.00E+00	0.00E+00	2.3E-08	2.1E-08	1.9E-08	1.2E-10
92	4.010E-05	4.008E-05	1.00	0.00E+00	0.00E+00	2.1E-08	1.9E-08	1.7E-08	9.0E-11
94	1.904E-05	1.902E-05	1.02	0.00E+00	0.00E+00	1.9E-08	1.7E-08	1.5E-08	6.0E-11
96	8.998E-06	8.998E-06	1.04	0.00E+00	0.00E+00	1.7E-08	1.5E-08	1.3E-08	4.0E-11
98	4.010E-05	4.008E-05	1.06	0.00E+00	0.00E+00	1.5E-08	1.3E-08	1.1E-08	2.0E-11
100	1.904E-05	1.902E-05	1.08	0.00E+00	0.00E+00	1.3E-08	1.1E-08	9.0E-09	1.0E-11
102	8.998E-06	8.998E-06	1.10	0.00E+00	0.00E+00	1.1E-08	9.0E-09	7.0E-09	5.0E-12
104	4.010E-05	4.008E-05	1.12	0.00E+00	0.00E+00	9.0E-09	7.0E-09	5.0E-09	3.0E-12
106	1.904E-05	1.902E-05	1.14	0.00E+00	0.00E+00	7.0E-09	5.0E-09	3.0E-09	1.5E-12
108	8.998E-06	8.998E-06	1.16	0.00E+00	0.00E+00	5.0E-09	3.0E-09	1.5E-09	7.0E-13
110	4.010E-05	4.008E-05	1.18	0.00E+00	0.00E+00	3.0E-09	1.5E-09	7.0E-10	3.5E-13
112	1.904E-05	1.902E-05	1.20	0.00E+00	0.00E+00	1.0E-09	5.0E-10	2.0E-10	1.0E-13
114	8.998E-06	8.998E-06	1.22	0.00E+00	0.00E+00	6.0E-10	3.0E-10	1.2E-10	5.0E-14
116	4.010E-05	4.008E-05	1.24	0.00E+00	0.00E+00	3.0E-10	1.5E-10	6.0E-11	2.5E-14
118	1.904E-05	1.902E-05	1.26	0.00E+00	0.00E+00	1.0E-10	5.0E-11	2.0E-11	1.0E-14
120	8.998E-06	8.998E-06	1.28	0.00E+00	0.00E+00	6.0E-11	3.0E-11	1.2E-11	5.0E-15
122	4.010E-05	4.008E-05	1.30	0.00E+00	0.00E+00	3.0E-11	1.5E-11	6.0E-12	2.5E-15
124	1.904E-05	1.902E-05	1.32	0.00E+00	0.00E+00	1.0E-11	5.0E-12	2.0E-12	1.0E-15
126	8.998E-06	8.998E-06	1.34	0.00E+00	0.00E+00	6.0E-12	3.0E-12	1.2E-12	5.0E-16
128	4.010E-05	4.008E-05	1.36	0.00E+00	0.00E+00	3.0E-12	1.5E-12	6.0E-13	2.5E-16
130	1.904E-05	1.902E-05	1.38	0.00E+00	0.00E+00	1.0E-12	5.0E-13	2.0E-13	1.0E-16
132	8.998E-06	8.998E-06	1.40	0.00E+00	0.00E+00	6.0E-13	3.0E-13	1.2E-13	5.0E-17
134	4.010E-05	4.008E-05	1.42	0.00E+00	0.00E+00	3.0E-13	1.5E-13	6.0E-14	2.5E-17
136	1.904E-05	1.902E-05	1.44	0.00E+00	0.00E+00	1.0E-13	5.0E-14	2.0E-14	1.0E-17
138	8.998E-06	8.998E-06	1.46	0.00E+00	0.00E+00	6.0E-14	3.0E-14	1.2E-14	5.0E-18
140	4.010E-05	4.008E-05	1.48	0.00E+00	0.00E+00	3.0E-14	1.5E-14	6.0E-15	2.5E-18
142	1.904E-05	1.902E-05	1.50	0.00E+00	0.00E+00	1.0E-14	5.0E-15	2.0E-15	1.0E-18
144	8.998E-06	8.998E-06	1.52	0.00E+00	0.00E+00	6.0E-15	3.0E-15	1.2E-15	5.0E-19
146	4.010E-05	4.008E-05	1.54	0.00E+00	0.00E+00	3.0E-15	1.5E-15	6.0E-16	2.5E-19
148	1.904E-05	1.902E-05	1.56	0.00E+00	0.00E+00	1.0E-15	5.0E-16	2.0E-16	1.0E-19
150	8.998E-06	8.998E-06	1.58	0.00E+00	0.00E+00	6.0E-16	3.0E-16	1.2E-16	5.0E-20
152	4.010E-05	4.008E-05	1.60	0.00E+00	0.00E+00	3.0E-16	1.5E-16	6.0E-17	2.5E-20
154	1.904E-05	1.902E-05	1.62	0.00E+00	0.00E+00	1.0E-16	5.0E-17	2.0E-17	1.0E-20
156	8.998E-06	8.998E-06	1.64	0.00E+00	0.00E+00	6.0E-17	3.0E-17	1.2E-17	5.0E-21
158	4.010E-05	4.008E-05	1.66	0.00E+00	0.00E+00	3.0E-17	1.5E-17	6.0E-18	2.5E-21
160	1.904E-05	1.902E-05	1.68	0.00E+00	0.00E+00	1.0E-17	5.0E-18	2.0E-18	1.0E-21
162	8.998E-06	8.998E-06	1.70	0.00E+00	0.00E+00	6.0E-18	3.0E-18	1.2E-18	5.0E-22
164	4.010E-05	4.008E-05	1.72	0.00E+00	0.00E+00	3.0E-18	1.5E-18	6.0E-19	2.5E-22
166	1.904E-05	1.902E-05	1.74	0.00E+00	0.00E+00	1.0E-18	5.0E-19	2.0E-19	1.0E-22
168	8.998E-06	8.998E-06	1.76	0.00E+00	0.00E+00	6.0E-19	3.0E-19	1.2E-19	5.0E-23
170	4.010E-05	4.008E-05	1.78	0.00E+00	0.00E+00	3.0E-19	1.5E-19	6.0E-20	2.5E-23
172	1.904E-05	1.902E-05	1.80	0.00E+00	0.00E+00	1.0E-19	5.0E-20	2.0E-20	1.0E-23
174	8.998E-06	8.998E-06	1.82	0.00E+00	0.00E+00	6.0E-20	3.0E-20	1.2E-20	5.0E-24
176	4.010E-05	4.008E-05	1.84	0.00E+00	0.00E+00	3.0E-20	1.5E-20	6.0E-21	2.5E-24
178	1.904E-05	1.902E-05	1.86	0.00E+00	0.00E+00	1.0E-20	5.0E-21	2.0E-21	1.0E-24
180	8.998E-06	8.998E-06	1.88	0.00E+00	0.00E+00	6.0E-21	3.0E-21	1.2E-21	5.0E-25
182	4.010E-05	4.008E-05	1.90	0.00E+00	0.00E+00	3.0E-21	1.5E-21	6.0E-22	2.5E-25
184	1.904E-05	1.902E-05	1.92	0.00E+00	0.00E+00	1.0E-21	5.0E-22	2.0E-22	1.0E-25
186	8.998E-06	8.998E-06	1.94	0.00E+00	0.00E+00	6.0E-22	3.0E-22	1.2E-22	5.0E-26
188	4.010E-05	4.008E-05	1.96	0.00E+00	0.00E+00	3.0E-22	1.5E-22	6.0E-23	2.5E-26
190	1.904E-05	1.902E-05	1.98	0.00E+00	0.00E+00	1.0E-22	5.0E-23	2.0E-23	1.0E-26
192	8.998E-06	8.998E-06	2.00	0.00E+00	0.00E+00	6.0E-23	3.0E-23	1.2E-23	5.0E-27
194	4.010E-05	4.008E-05	2.02	0.00E+00	0.00E+00	3.0E-23	1.5E-23	6.0E-24	2.5E-27
196	1.904E-05	1.902E-05	2.04	0.00E+00	0.00E+00	1.0E-23	5.0E-24	2.0E-24	1.0E-27
198	8.998E-06	8.998E-06	2.06	0.00E+00	0.00E+00	6.0E-24	3.0E-24	1.2E-24	5.0E-28
200	4.010E-05	4.008E-05	2.08	0.00E+00	0.00E+00	3.0E-24	1.5E-24	6.0E-25	2.5E-28
202	1.904E-05	1.902E-05	2.10						

TABLE E 30 A

**ORIGINAL PAGE IS  
OF POOR QUALITY**

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: TI  
 MODE: BARRI TIME: 1989.200 PERIOD= 1.875  
 NAME: 22; ATOMC(-W= 47.5°)  
 63.0 DEG/133.4-133.4 KM

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N) \*\*\*\*\*

ENERGY	SHIELD THICKNESS (GM/CM <sup>2</sup> )										
	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.62	1.29E-06	1.27E-06	1.25E-06	1.23E-06	1.20E-06	1.23E-06	1.20E-06	1.23E-06	1.39E-06	1.72E-06	1.86E-06
44.68	1.35E-06	1.35E-06	1.35E-06	1.35E-06	1.31E-06	1.32E-06	1.31E-06	1.32E-06	1.54E-06	1.86E-06	1.92E-06
54.36	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.56E-06	2.01E-06	2.11E-06
54.82	1.57E-06	1.55E-06	1.58E-06	1.58E-06	1.58E-06	1.61E-06	1.61E-06	1.61E-06	1.69E-06	2.32E-06	2.47E-06
64.07	1.73E-06	1.75E-06	1.77E-06	1.77E-06	1.75E-06	1.75E-06	1.75E-06	1.75E-06	1.94E-06	2.55E-06	2.63E-06
74.26	1.93E-06	1.93E-06	1.93E-06	1.93E-06	1.93E-06	1.93E-06	1.93E-06	1.93E-06	2.07E-06	2.33E-06	2.55E-06
84.49	2.19E-06	2.21E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.29E-06	2.94E-06	3.07E-06
94.73	2.41E-06	2.44E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.41E-06	2.68E-06	3.21E-06	3.32E-06
104.96	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.92E-06	2.92E-06	2.92E-06	3.13E-06	3.28E-06	3.37E-06
115.17	3.22E-06	3.24E-06	3.24E-06	3.24E-06	3.24E-06	3.28E-06	3.28E-06	3.28E-06	3.59E-06	3.81E-06	3.97E-06
125.36	3.56E-06	3.70E-06	3.70E-06	3.70E-06	3.70E-06	3.80E-06	3.80E-06	3.80E-06	3.98E-06	4.11E-06	4.31E-06
135.52	4.10E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.28E-06	4.28E-06	4.28E-06	4.40E-06	4.43E-06	4.51E-06
145.69	4.60E-06	4.60E-06	4.60E-06	4.60E-06	4.60E-06	4.66E-06	4.66E-06	4.66E-06	4.75E-06	4.82E-06	4.92E-06
155.86	5.16E-06	5.20E-06	5.20E-06	5.20E-06	5.20E-06	5.26E-06	5.26E-06	5.26E-06	5.35E-06	5.42E-06	5.52E-06
165.93	5.87E-06	5.87E-06	5.87E-06	5.87E-06	5.87E-06	5.94E-06	5.94E-06	5.94E-06	6.04E-06	6.14E-06	6.24E-06
176.00	6.62E-06	6.62E-06	6.62E-06	6.62E-06	6.62E-06	6.72E-06	6.72E-06	6.72E-06	6.82E-06	6.92E-06	6.94E-06
186.08	7.51E-06	7.51E-06	7.51E-06	7.51E-06	7.51E-06	7.62E-06	7.62E-06	7.62E-06	7.73E-06	7.83E-06	7.87E-06
196.16	8.51E-06	8.51E-06	8.51E-06	8.51E-06	8.51E-06	8.65E-06	8.65E-06	8.65E-06	8.78E-06	8.88E-06	8.92E-06
206.24	9.67E-06	9.67E-06	9.67E-06	9.67E-06	9.67E-06	9.82E-06	9.82E-06	9.82E-06	9.95E-06	1.02E-06	1.05E-06
216.32	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.25E-06	1.25E-06	1.25E-06	1.32E-06	1.38E-06	1.42E-06
226.40	1.46E-06	1.46E-06	1.46E-06	1.46E-06	1.46E-06	1.54E-06	1.54E-06	1.54E-06	1.62E-06	1.69E-06	1.73E-06
236.48	1.81E-06	1.81E-06	1.81E-06	1.81E-06	1.81E-06	1.92E-06	1.92E-06	1.92E-06	2.00E-06	2.07E-06	2.11E-06
246.56	2.27E-06	2.27E-06	2.27E-06	2.27E-06	2.27E-06	2.40E-06	2.40E-06	2.40E-06	2.48E-06	2.55E-06	2.59E-06
256.64	2.84E-06	2.84E-06	2.84E-06	2.84E-06	2.84E-06	3.02E-06	3.02E-06	3.02E-06	3.14E-06	3.25E-06	3.37E-06
266.72	3.56E-06	3.56E-06	3.56E-06	3.56E-06	3.56E-06	3.80E-06	3.80E-06	3.80E-06	3.92E-06	4.04E-06	4.16E-06
276.80	4.41E-06	4.41E-06	4.41E-06	4.41E-06	4.41E-06	4.64E-06	4.64E-06	4.64E-06	4.76E-06	4.88E-06	4.99E-06
286.88	5.41E-06	5.41E-06	5.41E-06	5.41E-06	5.41E-06	5.66E-06	5.66E-06	5.66E-06	5.78E-06	5.90E-06	5.99E-06
296.96	6.57E-06	6.57E-06	6.57E-06	6.57E-06	6.57E-06	6.82E-06	6.82E-06	6.82E-06	6.94E-06	7.06E-06	7.15E-06
307.04	7.87E-06	7.87E-06	7.87E-06	7.87E-06	7.87E-06	8.12E-06	8.12E-06	8.12E-06	8.24E-06	8.36E-06	8.45E-06
317.12	9.34E-06	9.34E-06	9.34E-06	9.34E-06	9.34E-06	9.60E-06	9.60E-06	9.60E-06	9.72E-06	9.84E-06	9.93E-06
327.20	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.16E-05	1.16E-05	1.16E-05	1.22E-05	1.28E-05	1.34E-05
337.28	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.37E-05	1.37E-05	1.37E-05	1.44E-05	1.51E-05	1.58E-05
347.36	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.61E-05	1.61E-05	1.61E-05	1.69E-05	1.77E-05	1.85E-05
357.44	1.81E-05	1.81E-05	1.81E-05	1.81E-05	1.81E-05	1.90E-05	1.90E-05	1.90E-05	1.99E-05	2.08E-05	2.17E-05
367.52	2.12E-05	2.12E-05	2.12E-05	2.12E-05	2.12E-05	2.22E-05	2.22E-05	2.22E-05	2.32E-05	2.42E-05	2.52E-05
377.60	2.46E-05	2.46E-05	2.46E-05	2.46E-05	2.46E-05	2.57E-05	2.57E-05	2.57E-05	2.68E-05	2.79E-05	2.90E-05
387.68	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	3.00E-05	3.00E-05	3.00E-05	3.11E-05	3.23E-05	3.34E-05
397.76	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.42E-05	3.42E-05	3.42E-05	3.54E-05	3.67E-05	3.78E-05
407.84	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.90E-05	3.90E-05	3.90E-05	4.02E-05	4.15E-05	4.26E-05
417.92	4.24E-05	4.24E-05	4.24E-05	4.24E-05	4.24E-05	4.45E-05	4.45E-05	4.45E-05	4.57E-05	4.70E-05	4.81E-05
427.00	4.84E-05	4.84E-05	4.84E-05	4.84E-05	4.84E-05	5.06E-05	5.06E-05	5.06E-05	5.18E-05	5.31E-05	5.42E-05
437.08	5.54E-05	5.54E-05	5.54E-05	5.54E-05	5.54E-05	5.77E-05	5.77E-05	5.77E-05	5.90E-05	6.03E-05	6.15E-05
447.16	6.34E-05	6.34E-05	6.34E-05	6.34E-05	6.34E-05	6.58E-05	6.58E-05	6.58E-05	6.72E-05	6.85E-05	6.97E-05
457.24	7.24E-05	7.24E-05	7.24E-05	7.24E-05	7.24E-05	7.50E-05	7.50E-05	7.50E-05	7.64E-05	7.78E-05	7.92E-05
467.32	8.24E-05	8.24E-05	8.24E-05	8.24E-05	8.24E-05	8.51E-05	8.51E-05	8.51E-05	8.67E-05	8.83E-05	9.00E-05
477.40	9.34E-05	9.34E-05	9.34E-05	9.34E-05	9.34E-05	9.63E-05	9.63E-05	9.63E-05	9.80E-05	9.97E-05	1.02E-05
487.48	1.05E-04	1.05E-04	1.05E-04	1.05E-04	1.05E-04	1.08E-04	1.08E-04	1.08E-04	1.12E-04	1.16E-04	1.19E-04
497.56	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.24E-04	1.24E-04	1.24E-04	1.28E-04	1.32E-04	1.36E-04
507.64	1.38E-04	1.38E-04	1.38E-04	1.38E-04	1.38E-04	1.43E-04	1.43E-04	1.43E-04	1.48E-04	1.53E-04	1.58E-04
517.72	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.64E-04	1.64E-04	1.64E-04	1.70E-04	1.76E-04	1.82E-04
527.80	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.88E-04	1.88E-04	1.88E-04	1.95E-04	2.02E-04	2.09E-04
537.88	2.10E-04	2.10E-04	2.10E-04	2.10E-04	2.10E-04	2.18E-04	2.18E-04	2.18E-04	2.26E-04	2.34E-04	2.42E-04
547.96	2.42E-04	2.42E-04	2.42E-04	2.42E-04	2.42E-04	2.51E-04	2.51E-04	2.51E-04	2.60E-04	2.69E-04	2.78E-04
557.04	2.77E-04	2.77E-04	2.77E-04	2.77E-04	2.77E-04	2.87E-04	2.87E-04	2.87E-04	2.97E-04	3.07E-04	3.17E-04
567.12	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.26E-04	3.26E-04	3.26E-04	3.37E-04	3.48E-04	3.59E-04
577.20	3.56E-04	3.56E-04	3.56E-04	3.56E-04	3.56E-04	3.68E-04	3.68E-04	3.68E-04	3.80E-04	3.92E-04	4.04E-04
587.28	4.00E-04	4.00E-04	4.00E-04	4.00E-04	4.00E-04	4.13E-04	4.13E-04	4.13E-04	4.26E-04	4.39E-04	4.52E-04
597.36	4.47E-04	4.47E-04	4.47E-04	4.47E-04	4.47E-04	4.61E-04	4.61E-04	4.61E-04	4.75E-04	4.89E-04	5.02E-04
607.44	4.94E-04	4.94E-04	4.94E-04	4.94E-04	4.94E-04	5.10E-04	5.10E-04	5.10E-04	5.25E-04	5.40E-04	5.55E-04
617.52	5.44E-04	5.44E-04	5.44E-04	5.44E-04	5.44E-04	5.61E-04	5.61E-04	5.61E-04	5.78E-04	5.95E-04	6.12E-04
627.60	5.95E-04	5.95E-04	5.95E-04	5.95E-04	5.95E-04	6.13E-04	6.13E-04	6.13E-04	6.31E-04	6.49E-04	6.67E-04
637.68	6.50E-04	6.50E-04	6.50E-04	6.50E-04	6.50E-04	6.70E-04	6.70E-04	6.70E-04	6.89E-04	7.08E-04	7.27E-04
647.76	7.10E-04	7.10E-04	7.10E-04	7.10E-04	7.10E-04	7.31E-04	7.31E-04	7.31E-04	7.52E-04	7.72E-04	7.92E-04
657.84	7.70E-04	7.70E-04	7.70E-04	7.70E-04	7.70E-04	7.92E-04	7.92E-04	7.92E-04	8.14E-04	8.34E-04	8.54E-04
667.92	8.30E-04	8.30E-04	8.30E-04	8.30E-04	8.30E-04	8.53E-04	8.53E-04	8.53E-04	8.75E-04	8.95E-04	9.15E-04
677.00	8.90E-04	8.90E-04	8.90E-04	8.90E-04	8.90E-04	9.13E-04	9.13E-04	9.13E-04	9.35E-04	9.55E-04	9.75E-04
687.08	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.73E-04	9.73E-04	9.73E-04	9.95E-04	1.01E-04	1.03E-04
697.16	1.02E-03	1.02E-03	1.02E-03	1.02E-03	1.02E-03	1.04E-03	1.04E-03	1.04E-03	1.06E-03	1.08E-03	1.10E-03
707.24	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.12E-03	1.12E-03	1.12E-03	1.14E-03	1.16E-03	1.18E-03
717.32	1.19E-03	1.19E-03	1.19E-03	1.19E-03	1.19E-03	1.21E-03	1.21E-03	1.21E-03	1.23E-03	1.25	

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: V

MODEL = BARD; TIME = 1989-240; PERIOD = 1.6723

(ATM C-HUE = 23; ATOM E = 50.95)

(E=63.0 DEG/133.4 RAD)

MAGNETOSPHERICALLY  
ATTEN-  
UATED

UNATTEN-  
UATED

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>DAY<sup>-1</sup>EV<sup>-1</sup>)

EN- ERGY	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12	1.28E-05	1.04E-05	0.20	0.00E+00	0.00E+00	5.70E-07	4.00E-07	3.22E-07	2.33E-07	2.17E-07	3.06E-07	3.36E-07	3.24E-07
14	1.44E-05	9.06E-05	0.25	0.00E+00	0.00E+00	5.38E-07	3.77E-07	3.00E-07	2.19E-07	2.05E-07	2.30E-07	3.17E-07	3.06E-07
16	6.87E-05	6.02E-07	-	-	-	5.08E-07	3.59E-07	2.88E-07	2.08E-07	1.94E-07	2.25E-07	2.68E-07	2.46E-07
18	7.19E-05	7.12E-07	-	-	-	4.75E-07	3.35E-07	2.68E-07	2.05E-07	1.81E-07	2.28E-07	2.70E-07	2.70E-07
20	6.55E-05	6.11E-07	-	-	-	4.33E-07	3.14E-07	2.45E-07	1.93E-07	1.65E-07	2.14E-07	2.54E-07	2.44E-07
22	6.13E-05	6.13E-07	-	-	-	4.00E-07	3.01E-07	2.32E-07	1.75E-07	1.43E-07	1.98E-07	2.51E-07	2.44E-07
24	5.91E-05	6.02E-07	-	-	-	3.90E-07	2.94E-07	2.24E-07	1.65E-07	1.34E-07	1.77E-07	2.38E-07	2.32E-07
26	5.42E-05	5.92E-07	-	-	-	3.80E-07	2.84E-07	2.14E-07	1.55E-07	1.24E-07	1.71E-07	2.32E-07	2.21E-07
28	5.04E-05	5.82E-07	-	-	-	3.70E-07	2.74E-07	2.04E-07	1.45E-07	1.13E-07	1.65E-07	2.22E-07	2.11E-07
30	4.76E-05	5.72E-07	-	-	-	3.60E-07	2.64E-07	1.94E-07	1.35E-07	1.03E-07	1.55E-07	2.12E-07	2.01E-07
32	4.59E-05	5.62E-07	-	-	-	3.50E-07	2.54E-07	1.84E-07	1.25E-07	9.1E-08	1.45E-07	1.92E-07	1.90E-07
34	4.42E-05	5.52E-07	-	-	-	3.40E-07	2.44E-07	1.74E-07	1.15E-07	8.0E-08	1.35E-07	1.80E-07	1.78E-07
36	4.26E-05	5.42E-07	-	-	-	3.30E-07	2.34E-07	1.64E-07	1.05E-07	7.0E-08	1.25E-07	1.70E-07	1.66E-07
38	4.10E-05	5.32E-07	-	-	-	3.20E-07	2.24E-07	1.54E-07	9.5E-08	6.0E-08	1.15E-07	1.60E-07	1.54E-07
40	3.95E-05	5.22E-07	-	-	-	3.10E-07	2.14E-07	1.44E-07	8.5E-08	5.0E-08	1.05E-07	1.50E-07	1.44E-07
42	3.81E-05	5.12E-07	-	-	-	3.00E-07	2.04E-07	1.34E-07	7.5E-08	4.0E-08	9.5E-08	1.40E-07	1.34E-07
44	3.68E-05	5.02E-07	-	-	-	2.90E-07	1.94E-07	1.24E-07	6.5E-08	3.0E-08	8.5E-08	1.30E-07	1.24E-07
46	3.56E-05	4.92E-07	-	-	-	2.80E-07	1.84E-07	1.14E-07	5.5E-08	2.0E-08	7.5E-08	1.20E-07	1.14E-07
48	3.45E-05	4.82E-07	-	-	-	2.70E-07	1.74E-07	1.04E-07	4.5E-08	1.0E-08	6.5E-08	1.10E-07	1.04E-07
50	3.35E-05	4.72E-07	-	-	-	2.60E-07	1.64E-07	9.4E-08	3.5E-08	9.0E-09	5.5E-08	9.0E-08	8.0E-08
52	3.26E-05	4.62E-07	-	-	-	2.50E-07	1.54E-07	8.4E-08	2.5E-08	8.0E-09	4.5E-08	8.0E-08	7.0E-08
54	3.18E-05	4.52E-07	-	-	-	2.40E-07	1.44E-07	7.4E-08	1.5E-08	7.0E-09	3.5E-08	7.0E-08	6.0E-08
56	3.11E-05	4.42E-07	-	-	-	2.30E-07	1.34E-07	6.4E-08	1.4E-08	6.0E-09	2.5E-08	6.0E-08	5.0E-08
58	3.05E-05	4.32E-07	-	-	-	2.20E-07	1.24E-07	5.4E-08	1.3E-08	5.0E-09	2.0E-08	5.0E-08	4.0E-08
60	3.00E-05	4.22E-07	-	-	-	2.10E-07	1.14E-07	4.4E-08	1.2E-08	4.0E-09	1.5E-08	4.0E-08	3.0E-08
62	2.96E-05	4.12E-07	-	-	-	2.00E-07	1.04E-07	3.4E-08	1.1E-08	3.0E-09	1.0E-08	3.0E-08	2.0E-08
64	2.93E-05	4.02E-07	-	-	-	1.90E-07	9.4E-08	2.4E-08	1.0E-08	2.0E-09	8.0E-09	2.0E-08	1.5E-08
66	2.91E-05	3.92E-07	-	-	-	1.80E-07	8.4E-08	1.4E-08	9.0E-09	1.0E-09	1.5E-09	1.5E-08	1.0E-08
68	2.89E-05	3.82E-07	-	-	-	1.70E-07	7.4E-08	1.0E-08	8.0E-09	8.0E-09	1.0E-09	1.0E-08	8.0E-09
70	2.88E-05	3.72E-07	-	-	-	1.60E-07	6.4E-08	8.0E-09	7.0E-09	6.0E-09	8.0E-09	9.0E-09	7.0E-09
72	2.87E-05	3.62E-07	-	-	-	1.50E-07	5.4E-08	6.0E-09	6.0E-09	5.0E-09	6.0E-09	7.0E-09	6.0E-09
74	2.86E-05	3.52E-07	-	-	-	1.40E-07	4.4E-08	4.0E-09	5.0E-09	4.0E-09	5.0E-09	6.0E-09	5.0E-09
76	2.85E-05	3.42E-07	-	-	-	1.30E-07	3.4E-08	2.0E-09	3.0E-09	2.0E-09	3.0E-09	4.0E-09	3.0E-09
78	2.84E-05	3.32E-07	-	-	-	1.20E-07	2.4E-08	1.0E-09	2.0E-09	1.0E-09	2.0E-09	3.0E-09	2.0E-09
80	2.83E-05	3.22E-07	-	-	-	1.10E-07	1.4E-08	5.0E-09	1.0E-09	5.0E-09	1.0E-09	2.0E-09	1.0E-09
82	2.82E-05	3.12E-07	-	-	-	1.00E-07	7.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
84	2.81E-05	3.02E-07	-	-	-	9.0E-08	4.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
86	2.80E-05	2.92E-07	-	-	-	8.0E-08	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
88	2.79E-05	2.82E-07	-	-	-	7.0E-08	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
90	2.78E-05	2.72E-07	-	-	-	6.0E-08	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
92	2.77E-05	2.62E-07	-	-	-	5.0E-08	4.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
94	2.76E-05	2.52E-07	-	-	-	4.0E-08	3.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
96	2.75E-05	2.42E-07	-	-	-	3.0E-08	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
98	2.74E-05	2.32E-07	-	-	-	2.0E-08	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
100	2.73E-05	2.22E-07	-	-	-	1.0E-08	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
102	2.72E-05	2.12E-07	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
104	2.71E-05	2.02E-07	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
106	2.70E-05	1.92E-07	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
108	2.69E-05	1.82E-07	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
110	2.68E-05	1.72E-07	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
112	2.67E-05	1.62E-07	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
114	2.66E-05	1.52E-07	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
116	2.65E-05	1.42E-07	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
118	2.64E-05	1.32E-07	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
120	2.63E-05	1.22E-07	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
122	2.62E-05	1.12E-07	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
124	2.61E-05	1.02E-07	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
126	2.60E-05	9.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
128	2.59E-05	8.2E-08	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
130	2.58E-05	7.2E-08	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
132	2.57E-05	6.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
134	2.56E-05	5.2E-08	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
136	2.55E-05	4.2E-08	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
138	2.54E-05	3.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
140	2.53E-05	2.2E-08	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
142	2.52E-05	1.2E-08	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
144	2.51E-05	1.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
146	2.50E-05	1.2E-08	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
148	2.49E-05	1.2E-08	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
150	2.48E-05	1.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
152	2.47E-05	1.2E-08	-	-	-	2.0E-09	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
154	2.46E-05	1.2E-08	-	-	-	1.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09	1.0E-09	5.0E-09
156	2.45E-05	1.2E-08	-	-	-	5.0E-09	2.0E-09	5.0E-09	5.0E-				

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 31 8

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM <sup>2</sup> *DAY*MEV/N)										
SHIELD THICKNESS (GM/CM <sup>2</sup> )		PARTICLES/CM <sup>2</sup>								
ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	5.0	10.0
3.9462	6.23E-07	6.14E-07	5.08E-07	5.42E-07	5.58E-07	6.03E-07	6.84E-07	8.44E-07	9.09E-07	8.66E-07
4.4962	6.55E-07	6.44E-07	2.2E-07	6.35E-07	6.38E-07	6.38E-07	6.68E-07	7.25E-07	9.15E-07	9.80E-07
5.0362	6.91E-07	6.79E-07	6.79E-07	6.79E-07	6.79E-07	6.79E-07	7.48E-07	7.94E-07	9.06E-07	9.38E-07
5.5662	7.25E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.95E-07	8.25E-07	9.24E-07	9.44E-07
6.0962	7.59E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	9.05E-07	9.7E-07	1.14E-06	1.24E-06
6.6262	7.93E-07	7.78E-07	7.78E-07	7.78E-07	7.78E-07	7.78E-07	9.88E-07	1.05E-06	1.13E-06	1.23E-06
7.2562	8.27E-07	8.11E-07	8.11E-07	8.11E-07	8.11E-07	8.11E-07	1.08E-06	1.15E-06	1.23E-06	1.36E-06
7.8862	8.61E-07	8.45E-07	8.45E-07	8.45E-07	8.45E-07	8.45E-07	1.25E-06	1.32E-06	1.41E-06	1.51E-06
8.5162	8.95E-07	8.79E-07	8.79E-07	8.79E-07	8.79E-07	8.79E-07	1.42E-06	1.51E-06	1.61E-06	1.71E-06
9.1462	9.3E-07	9.14E-07	9.14E-07	9.14E-07	9.14E-07	9.14E-07	1.6E-06	1.7E-06	1.86E-06	1.96E-06
9.7762	9.64E-07	9.48E-07	9.48E-07	9.48E-07	9.48E-07	9.48E-07	1.8E-06	1.9E-06	2.09E-06	2.21E-06
10.4062	1.0E-06	9.83E-07	9.83E-07	9.83E-07	9.83E-07	9.83E-07	2.0E-06	2.1E-06	2.3E-06	2.5E-06
11.0362	1.04E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	1.02E-06	2.2E-06	2.3E-06	2.5E-06	2.7E-06
11.6662	1.08E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	2.4E-06	2.5E-06	2.7E-06	2.9E-06
12.2962	1.12E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	2.6E-06	2.7E-06	2.9E-06	3.1E-06
12.9262	1.16E-06	1.14E-06	1.14E-06	1.14E-06	1.14E-06	1.14E-06	2.8E-06	2.9E-06	3.1E-06	3.3E-06
13.5562	1.2E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	3.0E-06	3.1E-06	3.3E-06	3.5E-06
14.1862	1.24E-06	1.22E-06	1.22E-06	1.22E-06	1.22E-06	1.22E-06	3.2E-06	3.3E-06	3.5E-06	3.7E-06
14.8162	1.28E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	3.4E-06	3.5E-06	3.7E-06	3.9E-06
15.4462	1.32E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	1.3E-06	3.6E-06	3.7E-06	3.9E-06	4.1E-06
16.0762	1.36E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	3.8E-06	3.9E-06	4.1E-06	4.3E-06
16.7062	1.4E-06	1.38E-06	1.38E-06	1.38E-06	1.38E-06	1.38E-06	4.0E-06	4.1E-06	4.3E-06	4.5E-06
17.3362	1.44E-06	1.42E-06	1.42E-06	1.42E-06	1.42E-06	1.42E-06	4.2E-06	4.3E-06	4.5E-06	4.7E-06
17.9662	1.48E-06	1.46E-06	1.46E-06	1.46E-06	1.46E-06	1.46E-06	4.4E-06	4.5E-06	4.7E-06	4.9E-06
18.5962	1.52E-06	1.5E-06	1.5E-06	1.5E-06	1.5E-06	1.5E-06	4.6E-06	4.7E-06	4.9E-06	5.1E-06
19.2262	1.56E-06	1.54E-06	1.54E-06	1.54E-06	1.54E-06	1.54E-06	4.8E-06	4.9E-06	5.1E-06	5.3E-06
19.8562	1.6E-06	1.58E-06	1.58E-06	1.58E-06	1.58E-06	1.58E-06	5.0E-06	5.1E-06	5.3E-06	5.5E-06
20.4862	1.64E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06	5.2E-06	5.3E-06	5.5E-06	5.7E-06
21.1162	1.68E-06	1.66E-06	1.66E-06	1.66E-06	1.66E-06	1.66E-06	5.4E-06	5.5E-06	5.7E-06	5.9E-06
21.7462	1.72E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	5.6E-06	5.7E-06	5.9E-06	6.1E-06
22.3762	1.76E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	5.8E-06	5.9E-06	6.1E-06	6.3E-06
23.0062	1.8E-06	1.78E-06	1.78E-06	1.78E-06	1.78E-06	1.78E-06	6.0E-06	6.1E-06	6.3E-06	6.5E-06
23.6362	1.84E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06	6.2E-06	6.3E-06	6.5E-06	6.7E-06
24.2662	1.88E-06	1.86E-06	1.86E-06	1.86E-06	1.86E-06	1.86E-06	6.4E-06	6.5E-06	6.7E-06	6.9E-06
24.8962	1.92E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	1.9E-06	6.6E-06	6.7E-06	6.9E-06	7.1E-06
25.5262	1.96E-06	1.94E-06	1.94E-06	1.94E-06	1.94E-06	1.94E-06	6.8E-06	6.9E-06	7.1E-06	7.3E-06
26.1562	2.0E-06	1.98E-06	1.98E-06	1.98E-06	1.98E-06	1.98E-06	7.0E-06	7.1E-06	7.3E-06	7.5E-06
26.7862	2.04E-06	2.02E-06	2.02E-06	2.02E-06	2.02E-06	2.02E-06	7.2E-06	7.3E-06	7.5E-06	7.7E-06
27.4162	2.08E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	7.4E-06	7.5E-06	7.7E-06	7.9E-06
28.0462	2.12E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	2.1E-06	7.6E-06	7.7E-06	7.9E-06	8.1E-06
28.6762	2.16E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	7.8E-06	7.9E-06	8.1E-06	8.3E-06
29.3062	2.2E-06	2.18E-06	2.18E-06	2.18E-06	2.18E-06	2.18E-06	8.0E-06	8.1E-06	8.3E-06	8.5E-06
29.9362	2.24E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	2.22E-06	8.2E-06	8.3E-06	8.5E-06	8.7E-06
30.5662	2.28E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	8.4E-06	8.5E-06	8.7E-06	8.9E-06
31.1962	2.32E-06	2.3E-06	2.3E-06	2.3E-06	2.3E-06	2.3E-06	8.6E-06	8.7E-06	8.9E-06	9.1E-06
31.8262	2.36E-06	2.34E-06	2.34E-06	2.34E-06	2.34E-06	2.34E-06	8.8E-06	8.9E-06	9.1E-06	9.3E-06
32.4562	2.4E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	9.0E-06	9.1E-06	9.3E-06	9.5E-06
33.0862	2.44E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06	9.2E-06	9.3E-06	9.5E-06	9.7E-06
33.7162	2.48E-06	2.46E-06	2.46E-06	2.46E-06	2.46E-06	2.46E-06	9.4E-06	9.5E-06	9.7E-06	9.9E-06
34.3462	2.52E-06	2.5E-06	2.5E-06	2.5E-06	2.5E-06	2.5E-06	9.6E-06	9.7E-06	9.9E-06	1.0E-05
34.9762	2.56E-06	2.54E-06	2.54E-06	2.54E-06	2.54E-06	2.54E-06	9.8E-06	9.9E-06	1.0E-05	1.02E-05
35.6062	2.6E-06	2.58E-06	2.58E-06	2.58E-06	2.58E-06	2.58E-06	1.0E-05	1.01E-05	1.03E-05	1.05E-05
36.2362	2.64E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	2.62E-06	1.02E-05	1.03E-05	1.05E-05	1.07E-05
36.8662	2.68E-06	2.66E-06	2.66E-06	2.66E-06	2.66E-06	2.66E-06	1.04E-05	1.05E-05	1.07E-05	1.09E-05
37.4962	2.72E-06	2.7E-06	2.7E-06	2.7E-06	2.7E-06	2.7E-06	1.06E-05	1.07E-05	1.09E-05	1.11E-05
38.1262	2.76E-06	2.74E-06	2.74E-06	2.74E-06	2.74E-06	2.74E-06	1.08E-05	1.09E-05	1.11E-05	1.13E-05
38.7562	2.8E-06	2.78E-06	2.78E-06	2.78E-06	2.78E-06	2.78E-06	1.1E-05	1.11E-05	1.13E-05	1.15E-05
39.3862	2.84E-06	2.82E-06	2.82E-06	2.82E-06	2.82E-06	2.82E-06	1.12E-05	1.13E-05	1.15E-05	1.17E-05
39.9162	2.88E-06	2.86E-06	2.86E-06	2.86E-06	2.86E-06	2.86E-06	1.14E-05	1.15E-05	1.17E-05	1.19E-05
40.5462	2.92E-06	2.9E-06	2.9E-06	2.9E-06	2.9E-06	2.9E-06	1.16E-05	1.17E-05	1.19E-05	1.21E-05
41.1762	2.96E-06	2.94E-06	2.94E-06	2.94E-06	2.94E-06	2.94E-06	1.18E-05	1.19E-05	1.21E-05	1.23E-05
41.8062	3.0E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	1.2E-05	1.21E-05	1.23E-05	1.25E-05
42.4362	3.04E-06	3.02E-06	3.02E-06	3.02E-06	3.02E-06	3.02E-06	1.22E-05	1.23E-05	1.25E-05	1.27E-05
43.0662	3.08E-06	3.06E-06	3.06E-06	3.06E-06	3.06E-06	3.06E-06	1.24E-05	1.25E-05	1.27E-05	1.29E-05
43.6962	3.12E-06	3.1E-06	3.1E-06	3.1E-06	3.1E-06	3.1E-06	1.26E-05	1.27E-05	1.29E-05	1.31E-05
44.3262	3.16E-06	3.14E-06	3.14E-06	3.14E-06	3.14E-06	3.14E-06	1.28E-05	1.29E-05	1.31E-05	1.33E-05
44.9562	3.2E-06	3.18E-06	3.18E-06	3.18E-06	3.18E-06	3.18E-06	1.3E-05	1.31E-05	1.33E-05	1.35E-05
45.5862	3.24E-06	3.22E-06	3.22E-06	3.22E-06	3.22E-06	3.22E-06	1.32E-05	1.33E-05	1.35E-05	1.37E-05
46.2162	3.28E-06	3.26E-06	3.26E-06	3.26E-06	3.26E-06	3.26E-06	1.34E-05	1.35E-05	1.37E-05	1.39E-05
46.8462	3.32E-06	3.3E-06	3.3E-06	3.3E-06	3.3E-06	3.3E-06	1.36E-05	1.37E-05	1.39E-05	1.41E-05
47.4762	3.36E-06	3.34E-06	3.34E-06	3.34E-06	3.34E-06	3.34E-06	1.38E-05	1.39E-05	1.41E-05	1.43E-05
48.1062	3.4E-06	3.38E-06	3.38E-06	3.38E-06	3.38E-06	3.38E-06	1.4E-05	1.41E-05	1.43E-05	1.45E-05
48.7362	3.44E-06	3.42E-06	3.42E-06	3.42E-06	3.42E-06	3.42E-06	1.42E-05	1.43E-05	1.45E-05	1.47E-05
49.3662	3.48E-06	3.46E-06	3.46E-06	3.46E-06	3.46E-06	3.46E-06	1.44E-05	1.45E-05	1.47E-05	1.49E-05
50.9962	3.52E-06	3.5E-06	3.5E-06	3.5E-06	3.5E-06	3.5E-06	1.46E-05	1.47E-05	1.49E-05	1.51E-05

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CR  
MONTE = HARR; TIME = 2:19:20; MERT00 = 1;  
( ATOM = 1-NUE = 1334-1334; R00 = 52.01)

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MAGNETOSPHERICALLY  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY/MEV/N)

EN-	UNATTEN-	ATTEN-	ENERGY	SHIELD THICKNESS (667CM <sup>2</sup> )							
				0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0
12	2.47E-05	2.01E-06	0.000F+00	1.11E-06	7.91E-07	6.47E-07	4.35E-07	4.52E-07	4.75E-07	6.37E-07	6.96E-07
14	2.02E-05	1.75E-06	0.000F+00	0.000F+00	9.84E-07	7.04E-07	6.10E-07	4.10E-07	4.48E-07	5.21E-07	6.01E-07
16	1.64E-05	1.55E-06	0.000F+00	0.000F+00	9.22E-07	6.59E-07	5.73E-07	3.85E-07	4.91E-07	5.62E-07	6.56E-07
18	1.45E-05	1.38E-06	0.000F+00	0.000F+00	8.74E-07	6.24E-07	5.14E-07	3.46E-07	3.77E-07	3.96E-07	5.17E-07
20	1.26E-05	1.28E-06	0.000F+00	0.000F+00	8.28E-07	5.95E-07	4.87E-07	3.60E-07	3.78E-07	5.03E-07	5.26E-07
23	1.17E-05	1.22E-06	0.000F+00	0.000F+00	7.79E-07	5.60E-07	4.57E-07	3.40E-07	3.27E-07	4.80E-07	5.24E-07
26	1.09E-05	1.17E-06	0.000F+00	0.000F+00	7.59E-07	5.44E-07	4.46E-07	3.08E-07	3.36E-07	4.51E-07	4.93E-07
30	1.01E-05	1.15E-06	0.000F+00	0.000F+00	7.39E-07	5.24E-07	4.30E-07	3.00E-07	3.28E-07	4.40E-07	4.68E-07
34	9.80E-06	1.18E-06	0.000F+00	0.000F+00	7.32E-07	5.24E-07	4.30E-07	3.01E-07	3.16E-07	4.40E-07	4.56E-07
40	9.45E-06	1.23E-06	0.000F+00	0.000F+00	7.30E-07	5.10E-07	4.18E-07	2.91E-07	2.93E-07	4.22E-07	4.44E-07
46	9.09E-06	1.31E-06	0.000F+00	0.000F+00	7.29E-07	5.08E-07	4.06E-07	2.74E-07	2.85E-07	4.01E-07	4.38E-07
50	9.45E-06	1.36E-06	0.000F+00	0.000F+00	7.24E-07	4.98E-07	4.00E-07	2.69E-07	2.81E-07	4.09E-07	4.09E-07
54	9.71E-06	1.42E-06	0.000F+00	0.000F+00	6.63E-07	4.80E-07	3.94E-07	2.55E-07	2.78E-07	3.88E-07	4.03E-07
60	1.03E-05	1.52E-06	0.000F+00	0.000F+00	6.51E-07	4.75E-07	3.90E-07	2.63E-07	2.76E-07	3.90E-07	3.99E-07
64	1.08E-05	1.59E-06	0.000F+00	0.000F+00	6.44E-07	4.70E-07	3.87E-07	2.61E-07	2.73E-07	3.86E-07	3.96E-07
70	1.07E-05	1.74E-06	0.000F+00	0.000F+00	6.41E-07	4.69E-07	3.85E-07	2.61E-07	2.73E-07	3.83E-07	3.95E-07
76	1.11E-05	1.89E-06	0.000F+00	0.000F+00	6.39E-07	4.67E-07	3.83E-07	2.61E-07	2.73E-07	3.81E-07	3.95E-07
80	1.33E-05	1.97E-06	0.000F+00	0.000F+00	6.30E-07	4.63E-07	3.80E-07	2.61E-07	2.73E-07	3.79E-07	3.95E-07
90	1.20E-05	2.04E-06	0.000F+00	0.000F+00	6.24E-07	4.59E-07	3.79E-07	2.60E-07	2.73E-07	3.78E-07	3.95E-07
94	1.19E-05	2.14E-06	0.000F+00	0.000F+00	6.19E-07	4.55E-07	3.75E-07	2.59E-07	2.72E-07	3.77E-07	3.95E-07
96	1.22E-05	2.24E-06	0.000F+00	0.000F+00	6.14E-07	4.50E-07	3.70E-07	2.57E-07	2.69E-07	3.72E-07	3.92E-07
100	1.24E-05	2.45E-06	0.000F+00	0.000F+00	6.04E-07	4.46E-07	3.65E-07	2.52E-07	2.64E-07	3.67E-07	3.92E-07
109	1.37E-05	2.84E-06	0.000F+00	0.000F+00	5.87E-07	4.32E-07	3.59E-07	2.47E-07	2.56E-07	3.62E-07	3.82E-07
113	1.45E-05	3.14E-06	0.000F+00	0.000F+00	5.71E-07	4.28E-07	3.56E-07	2.43E-07	2.52E-07	3.58E-07	3.80E-07
123	1.54E-05	3.45E-06	0.000F+00	0.000F+00	5.56E-07	4.24E-07	3.53E-07	2.39E-07	2.49E-07	3.54E-07	3.78E-07
162	2.05E-05	4.20E-06	0.000F+00	0.000F+00	5.21E-07	4.10E-07	3.48E-07	2.35E-07	2.45E-07	3.45E-07	3.74E-07
209	2.04E-05	4.26E-06	0.000F+00	0.000F+00	5.16E-07	4.06E-07	3.45E-07	2.31E-07	2.42E-07	3.43E-07	3.73E-07
309	2.14E-05	6.84E-06	0.000F+00	0.000F+00	5.05E-07	4.02E-07	3.42E-07	2.27E-07	2.39E-07	3.40E-07	3.72E-07
313	2.14E-05	7.00E-06	0.000F+00	0.000F+00	5.01E-07	3.98E-07	3.40E-07	2.23E-07	2.35E-07	3.36E-07	3.71E-07
397	2.14E-05	7.76E-06	0.000F+00	0.000F+00	4.95E-07	3.94E-07	3.36E-07	2.19E-07	2.31E-07	3.34E-07	3.70E-07
400	2.14E-05	7.77E-06	0.000F+00	0.000F+00	4.90E-07	3.90E-07	3.32E-07	2.15E-07	2.27E-07	3.30E-07	3.68E-07
500	2.05E-05	6.06E-06	0.000F+00	0.000F+00	4.92E-07	3.86E-07	3.28E-07	2.11E-07	2.23E-07	3.26E-07	3.66E-07
505	2.05E-05	6.08E-06	0.000F+00	0.000F+00	4.93E-07	3.87E-07	3.29E-07	2.12E-07	2.24E-07	3.27E-07	3.67E-07
600	1.87E-05	7.84E-06	0.000F+00	0.000F+00	4.75E-07	3.75E-07	3.15E-07	2.08E-07	2.18E-07	3.16E-07	3.62E-07
660	1.77E-05	7.89E-06	0.000F+00	0.000F+00	4.71E-07	3.71E-07	3.14E-07	2.04E-07	2.14E-07	3.15E-07	3.61E-07
799	4.71E-05	7.49E-06	0.000F+00	0.000F+00	4.68E-07	3.67E-07	3.13E-07	2.00E-07	2.10E-07	3.14E-07	3.60E-07
800	4.71E-05	7.42E-06	0.000F+00	0.000F+00	4.64E-07	3.63E-07	3.10E-07	1.97E-07	1.97E-07	3.09E-07	3.59E-07
865	1.41E-05	6.77E-06	0.000F+00	0.000F+00	4.55E-07	3.58E-07	3.06E-07	1.93E-07	1.93E-07	3.08E-07	3.58E-07
900	1.33E-05	6.54E-06	0.000F+00	0.000F+00	4.50E-07	3.53E-07	3.01E-07	1.89E-07	1.89E-07	3.04E-07	3.54E-07
1000	1.21E-05	5.99E-06	0.000F+00	0.000F+00	4.45E-07	3.48E-07	2.96E-07	1.85E-07	1.85E-07	3.00E-07	3.50E-07
1147	1.01E-05	5.33E-06	0.000F+00	0.000F+00	4.40E-07	3.43E-07	2.91E-07	1.81E-07	1.81E-07	2.96E-07	3.46E-07
1545	6.71E-06	3.98E-06	0.000F+00	0.000F+00	4.35E-07	3.38E-07	2.86E-07	1.77E-07	1.77E-07	2.91E-07	3.41E-07
2003	4.72E-06	3.07E-06	0.000F+00	0.000F+00	4.30E-07	3.33E-07	2.81E-07	1.73E-07	1.73E-07	2.86E-07	3.36E-07
2129	4.31E-06	2.59E-06	0.000F+00	0.000F+00	4.26E-07	3.28E-07	2.76E-07	1.69E-07	1.69E-07	2.81E-07	3.31E-07
2977	2.51E-06	2.05E-06	0.000F+00	0.000F+00	4.22E-07	3.23E-07	2.71E-07	1.65E-07	1.65E-07	2.76E-07	3.26E-07

TABLE 32 A

**ORIGINAL PAGE IS  
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TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CP  
 MODEL = BARRI TIME = 1989-12-01 PERIOD = 1-8723  
 (ATOMIC-NUM= 24; ATOMIC-W= 52-01;  
 6.10 DEG/L334-1334 KM)

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM\*\*2\*DAY\*MEV/N) \*\*\*\*\*

SHIELD THICKNESS (GM/CM**2)									
ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0
39.52	1.31E-06	1.110E-06	1.05E-06	1.05E-06	1.05E-06	1.175E-06	1.175E-06	1.175E-06	1.31E-06
40.53	1.434E-06	1.377E-06	1.326E-06	1.295E-06	1.272E-06	1.242E-06	1.242E-06	1.242E-06	1.323E-06
56.43	1.68E-06	1.66E-06	1.64E-06	1.64E-06	1.64E-06	1.55E-06	1.55E-06	1.55E-06	1.623E-06
64.42	1.82E-06	1.74E-06	1.66E-06	1.66E-06	1.66E-06	1.75E-06	1.75E-06	1.75E-06	1.84E-06
72.42	2.055E-06	1.918E-06	1.818E-06	1.818E-06	1.818E-06	1.818E-06	1.818E-06	1.818E-06	2.032E-06
91.89	2.266E-06	2.079E-06	1.98E-06	1.98E-06	1.98E-06	2.11E-06	2.11E-06	2.11E-06	2.44E-06
111.89	2.566E-06	2.39E-06	2.25E-06	2.25E-06	2.25E-06	2.42E-06	2.42E-06	2.42E-06	2.64E-06
103.63	2.666E-06	2.577E-06	2.477E-06	2.477E-06	2.477E-06	2.87E-06	2.87E-06	2.87E-06	3.122E-06
116.86	2.777E-06	3.01E-06	2.90E-06	2.90E-06	2.90E-06	3.18E-06	3.18E-06	3.18E-06	3.523E-06
131.79	3.155E-06	3.46E-06	3.49E-06	3.49E-06	3.49E-06	3.58E-06	3.58E-06	3.58E-06	3.58E-06
148.62	3.323E-06	4.00E-06	4.01E-06	4.01E-06	4.01E-06	4.05E-06	4.05E-06	4.05E-06	4.12E-06
167.60	4.232E-06	4.312E-06	4.34E-06	4.34E-06	4.34E-06	4.39E-06	4.39E-06	4.39E-06	4.46E-06
189.01	4.655E-06	4.99E-06	4.93E-06	4.93E-06	4.93E-06	4.97E-06	4.97E-06	4.97E-06	4.70E-06
213.15	5.19E-06	5.66E-06	5.57E-06	5.57E-06	5.57E-06	5.61E-06	5.61E-06	5.61E-06	5.25E-06
240.38	5.54E-06	5.16E-06	5.88E-06	5.88E-06	5.88E-06	5.92E-06	5.92E-06	5.92E-06	5.13E-06
271.08	5.81E-06	5.77E-06	6.35E-06	6.35E-06	6.35E-06	6.39E-06	6.39E-06	6.39E-06	5.47E-06
305.70	6.04E-06	6.09E-06	6.90E-06	6.90E-06	6.90E-06	6.94E-06	6.94E-06	6.94E-06	6.28E-06
-344.74	6.21E-06	6.49E-06	7.24E-06	7.24E-06	7.24E-06	7.38E-06	7.38E-06	7.38E-06	6.76E-06
368.77	7.44E-06	7.59E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06	6.89E-06
386.43	7.61E-06	7.79E-06	7.75E-06	7.75E-06	7.75E-06	7.75E-06	7.75E-06	7.75E-06	6.22E-06
594.42	7.74E-06	7.65E-06	4.34E-06						
655.72	7.74E-06	7.65E-06	4.34E-06						
729.02	7.74E-06	7.56E-06	4.34E-06						
790.62	7.74E-06	6.89E-06	4.34E-06						
901.76	6.372E-06	6.19E-06	6.13E-06	6.13E-06	6.13E-06	6.08E-06	6.08E-06	6.08E-06	5.94E-06
917.00	5.75E-06	5.62E-06	5.77E-06	5.77E-06	5.77E-06	5.43E-06	5.43E-06	5.43E-06	5.15E-06
1146.30	5.32E-06	5.15E-06	5.08E-06	5.08E-06	5.08E-06	4.95E-06	4.95E-06	4.95E-06	4.59E-06
1293.30	4.33E-06	4.55E-06	4.49E-06	4.49E-06	4.49E-06	4.47E-06	4.47E-06	4.47E-06	4.24E-06
1458.50	4.13E-06	4.06E-06	4.03E-06	4.03E-06	4.03E-06	3.94E-06	3.94E-06	3.94E-06	3.88E-06
1644.80	3.95E-06	3.66E-06	3.62E-06	3.62E-06	3.62E-06	3.58E-06	3.58E-06	3.58E-06	3.51E-06
1854.90	3.77E-06	3.22E-06	3.17E-06	3.17E-06	3.17E-06	3.09E-06	3.09E-06	3.09E-06	3.22E-06
2051.80	2.91E-06	2.49E-06	2.48E-06	2.48E-06	2.48E-06	2.48E-06	2.48E-06	2.48E-06	2.71E-06
-2259.90	2.38E-06	2.16E-06	2.19E-06	2.19E-06	2.19E-06	2.48E-06	2.48E-06	2.48E-06	2.44E-06
-2660.20	2.21E-06	2.19E-06	2.16E-06	2.16E-06	2.16E-06	2.03E-06	2.03E-06	2.03E-06	1.96E-06

TABLE 32 B

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ORIGINAL PAGE 19  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: MN  
MODEL = BARRIC TIME= 1989+0.0; PERIOD= 1.0723  
(ATOMIC NUMBER= 25+A TOMIC= 59+94)  
0390 DEG3334-1354 E

MAGNETOSPHERICALLY  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLE 5/CM<sup>2</sup>/DAY/MEV/N)

SHIELD THICKNESS 59 (5/CM <sup>2</sup> /DAY)									
	EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10
12	1.8E-05	1.52E-06	0.20	0.00E+00	0.00E+00	8.64E-07	6.20E-07	5.09E-07	3.46E-07
14	1.53E-05	1.33E-06	0.23	0.00E+00	0.00E+00	8.15E-07	5.85E-07	4.80E-07	3.26E-07
16	1.22E-05	1.08E-06	0.25	0.00E+00	0.00E+00	7.66E-07	5.50E-07	4.52E-07	3.06E-07
18	1.11E-05	1.00E-06	0.29	0.00E+00	0.00E+00	7.20E-07	5.1E-07	4.24E-07	2.98E-07
20	9.53E-06	9.69E-07	0.32	0.00E+00	0.00E+00	6.81E-07	4.94E-07	4.04E-07	3.04E-07
22	8.88E-06	9.28E-07	0.36	0.00E+00	0.00E+00	6.56E-07	4.66E-07	3.83E-07	2.91E-07
24	8.2E-06	9.23E-07	0.41	0.00E+00	0.00E+00	6.30E-07	4.39E-07	3.54E-07	2.67E-07
26	7.61E-06	8.86E-07	0.46	0.00E+00	0.00E+00	6.05E-07	4.12E-07	3.28E-07	2.45E-07
28	7.14E-06	8.58E-07	0.51	0.00E+00	0.00E+00	5.81E-07	3.85E-07	3.04E-07	2.24E-07
30	6.74E-06	8.3E-07	0.57	0.00E+00	0.00E+00	5.56E-07	3.57E-07	2.81E-07	2.04E-07
32	6.4E-06	7.98E-07	0.63	0.00E+00	0.00E+00	5.32E-07	3.28E-07	2.56E-07	1.84E-07
34	6.1E-06	7.68E-07	0.7	0.00E+00	0.00E+00	5.08E-07	3.02E-07	2.31E-07	1.64E-07
36	5.8E-06	7.38E-07	0.75	0.00E+00	0.00E+00	4.84E-07	2.76E-07	2.07E-07	1.44E-07
38	5.5E-06	7.08E-07	0.81	0.00E+00	0.00E+00	4.61E-07	2.51E-07	1.83E-07	1.24E-07
40	5.2E-06	6.78E-07	0.87	0.00E+00	0.00E+00	4.37E-07	2.26E-07	1.61E-07	1.04E-07
42	4.9E-06	6.48E-07	0.93	0.00E+00	0.00E+00	4.14E-07	2.01E-07	1.41E-07	8.4E-08
44	4.6E-06	6.18E-07	0.99	0.00E+00	0.00E+00	3.91E-07	1.76E-07	1.21E-07	6.4E-08
46	4.3E-06	5.88E-07	1.05	0.00E+00	0.00E+00	3.68E-07	1.51E-07	1.01E-07	4.4E-08
48	4.0E-06	5.58E-07	1.11	0.00E+00	0.00E+00	3.45E-07	1.26E-07	8.1E-08	2.4E-08
50	3.7E-06	5.28E-07	1.17	0.00E+00	0.00E+00	3.22E-07	1.01E-07	6.1E-08	1.4E-08
52	3.4E-06	4.98E-07	1.23	0.00E+00	0.00E+00	2.99E-07	7.6E-08	4.1E-08	1.0E-08
54	3.1E-06	4.68E-07	1.29	0.00E+00	0.00E+00	2.76E-07	5.1E-08	2.1E-08	6.6E-09
56	2.8E-06	4.38E-07	1.35	0.00E+00	0.00E+00	2.53E-07	2.6E-08	1.1E-08	4.6E-09
58	2.5E-06	4.08E-07	1.41	0.00E+00	0.00E+00	2.30E-07	1.1E-08	7.1E-09	3.6E-09
60	2.2E-06	3.78E-07	1.47	0.00E+00	0.00E+00	2.07E-07	7.6E-09	4.1E-09	2.6E-09
62	1.9E-06	3.48E-07	1.53	0.00E+00	0.00E+00	1.84E-07	4.1E-09	2.1E-09	1.6E-09
64	1.7E-06	3.18E-07	1.59	0.00E+00	0.00E+00	1.61E-07	1.6E-09	1.0E-09	1.1E-09
66	1.5E-06	2.88E-07	1.65	0.00E+00	0.00E+00	1.38E-07	1.2E-09	7.6E-10	8.6E-10
68	1.3E-06	2.58E-07	1.71	0.00E+00	0.00E+00	1.15E-07	8.6E-10	5.6E-10	6.1E-10
70	1.1E-06	2.28E-07	1.77	0.00E+00	0.00E+00	9.2E-08	5.1E-10	3.6E-10	4.1E-10
72	9.5E-07	1.98E-07	1.83	0.00E+00	0.00E+00	6.9E-08	2.6E-10	1.7E-10	2.1E-10
74	8.2E-07	1.68E-07	1.89	0.00E+00	0.00E+00	4.61E-08	1.3E-10	9.1E-11	1.2E-10
76	7.0E-07	1.38E-07	1.95	0.00E+00	0.00E+00	2.24E-08	6.1E-11	4.1E-11	5.1E-11
78	5.9E-07	1.08E-07	2.01	0.00E+00	0.00E+00	1.01E-08	3.1E-11	2.0E-11	2.4E-11
80	5.0E-07	7.8E-08	2.07	0.00E+00	0.00E+00	5.02E-09	1.5E-11	1.0E-11	1.3E-11
82	4.2E-07	4.8E-08	2.13	0.00E+00	0.00E+00	2.09E-09	7.1E-12	4.7E-12	6.8E-12
84	3.5E-07	1.8E-08	2.19	0.00E+00	0.00E+00	1.05E-09	3.7E-12	2.4E-12	3.8E-12
86	2.9E-07	8.8E-09	2.25	0.00E+00	0.00E+00	5.25E-10	2.1E-12	1.4E-12	2.2E-12
88	2.4E-07	4.8E-09	2.31	0.00E+00	0.00E+00	2.62E-10	1.1E-12	7.6E-13	1.2E-12
90	2.0E-07	2.8E-09	2.37	0.00E+00	0.00E+00	1.31E-10	5.6E-13	3.7E-13	6.3E-13
92	1.6E-07	1.8E-09	2.43	0.00E+00	0.00E+00	6.56E-11	3.1E-13	2.1E-13	3.1E-13
94	1.3E-07	1.0E-09	2.49	0.00E+00	0.00E+00	3.28E-11	1.6E-13	1.1E-13	1.8E-13
96	1.0E-07	6.2E-10	2.55	0.00E+00	0.00E+00	1.64E-11	8.1E-14	5.6E-14	7.6E-14
98	7.8E-08	4.4E-10	2.61	0.00E+00	0.00E+00	8.2E-12	4.1E-14	2.7E-14	3.7E-14
100	6.5E-08	3.0E-10	2.67	0.00E+00	0.00E+00	4.1E-12	2.1E-14	1.4E-14	2.1E-14
102	5.3E-08	2.0E-10	2.73	0.00E+00	0.00E+00	2.07E-12	1.0E-14	7.1E-15	1.0E-14
104	4.2E-08	1.3E-10	2.79	0.00E+00	0.00E+00	1.04E-12	5.2E-15	3.6E-15	5.3E-15
106	3.2E-08	8.0E-11	2.85	0.00E+00	0.00E+00	5.22E-13	2.6E-15	1.8E-15	2.6E-15
108	2.3E-08	5.0E-11	2.91	0.00E+00	0.00E+00	2.61E-13	1.3E-15	9.1E-16	1.3E-15
110	1.5E-08	3.0E-11	2.97	0.00E+00	0.00E+00	1.30E-13	6.5E-16	4.7E-16	6.5E-16
112	1.0E-08	2.0E-11	3.03	0.00E+00	0.00E+00	6.50E-14	3.2E-16	2.2E-16	3.2E-16
114	7.0E-09	1.3E-11	3.09	0.00E+00	0.00E+00	3.25E-14	1.6E-16	1.1E-16	1.6E-16
116	5.0E-09	9.0E-12	3.15	0.00E+00	0.00E+00	1.62E-14	8.1E-17	5.6E-17	8.1E-17
118	3.5E-09	6.0E-12	3.21	0.00E+00	0.00E+00	8.11E-15	4.0E-17	2.6E-17	4.0E-17
120	2.4E-09	4.0E-12	3.27	0.00E+00	0.00E+00	4.05E-15	2.0E-17	1.2E-17	2.0E-17
122	1.7E-09	2.7E-12	3.33	0.00E+00	0.00E+00	2.02E-15	1.0E-17	6.1E-18	1.0E-17
124	1.2E-09	1.8E-12	3.39	0.00E+00	0.00E+00	1.01E-15	5.0E-18	3.1E-18	5.0E-18
126	8.5E-10	1.2E-12	3.45	0.00E+00	0.00E+00	5.05E-16	2.5E-18	1.5E-18	2.5E-18
128	6.0E-10	8.0E-13	3.51	0.00E+00	0.00E+00	2.52E-16	1.25E-18	6.5E-19	1.25E-18
130	4.2E-10	5.3E-13	3.57	0.00E+00	0.00E+00	1.26E-16	6.25E-19	3.25E-19	6.25E-19
132	3.0E-10	3.8E-13	3.63	0.00E+00	0.00E+00	6.31E-17	3.125E-19	1.625E-19	3.125E-19
134	2.1E-10	2.6E-13	3.69	0.00E+00	0.00E+00	3.155E-17	1.5625E-19	7.8125E-19	1.5625E-19
136	1.5E-10	1.8E-13	3.75	0.00E+00	0.00E+00	1.5775E-17	7.8125E-19	3.90625E-19	7.8125E-19
138	1.1E-10	1.3E-13	3.81	0.00E+00	0.00E+00	8.8875E-18	4.003125E-19	2.0015625E-19	4.003125E-19
140	7.8E-11	9.5E-14	3.87	0.00E+00	0.00E+00	4.44375E-18	2.0015625E-19	1.00078125E-19	2.0015625E-19
142	5.5E-11	6.8E-14	3.93	0.00E+00	0.00E+00	2.221875E-18	1.00078125E-19	5.00390625E-19	1.00078125E-19
144	3.9E-11	4.8E-14	3.99	0.00E+00	0.00E+00	1.1109375E-18	5.00390625E-19	2.501953125E-19	5.00390625E-19
146	2.7E-11	3.2E-14	4.05	0.00E+00	0.00E+00	5.55471875E-19	2.501953125E-19	1.2509765625E-19	2.501953125E-19
148	1.8E-11	2.1E-14	4.11	0.00E+00	0.00E+00	2.777359375E-19	1.2509765625E-19	6.2548828125E-19	1.2509765625E-19
150	1.2E-11	1.4E-14	4.17	0.00E+00	0.00E+00	1.3886796875E-19	6.2548828125E-19	3.12544140625E-19	6.2548828125E-19
152	8.2E-12	1.0E-14	4.23	0.00E+00	0.00E+00	6.9433975E-20	3.12544140625E-19	1.56285359375E-19	3.12544140625E-19
154	5.5E-12	7.0E-15	4.29	0.00E+00	0.00E+00	3.47169875E-20	1.56285359375E-19	7.81426796875E-19	1.56285359375E-19
156	3.7E-12	4.8E-15	4.35	0.00E+00	0.00E+00	1.785849375E-20	7.81426796875E-19	3.907131484375E-19	7.81426796875E-19
158	2.5E-12	3.2E-15	4.41	0.00E+00	0.00E+00	8.929246875E-21	3.907131484375E-19	1.95356373125E-19	3.907131484375E-19
160	1.7E-12	2.1E-15	4.47	0.00E+00	0.00E+00	4.4646234375E-21	1.95356373125E-19	9.7678186875E-19	1.95356373125E-19
162	1.1E-12	1.4E-15	4.53	0.00E+00	0.00E+00	2.23231171875E-21	9.7678186875E-19	4.883909375E-19	4.883909375E-19
164	7.5E-13	9.5E-16	4.59	0.00E+00	0.00E+00	1.1161558625E-21	4.883909375E-19	2.441979375E-19	2.441979375E-19
166	5.2E-13	6.3E-16	4.65	0.00E+00	0.00E+00	6.08077890625E-22	2.441979375E-19	1.2209896875E-19	1.2209896875E-19
168	3.5E-13	4.2E-16	4.71	0.00E+00	0.00E+00	3.540389453125E-22	1.2209896875E-19	6.1049484375E-19	6.1049484375E-19
170	2.3E-13	2.8E-16	4.77	0.00E+00	0.00E+00	1.770194703125E-22	6.1049484375E-19	3.05047421875E-19	3.05047421875E-19
172	1.5E-13	1.8E-16	4.83	0.00E+00	0.00E+00	8.850972515625E-23	3.05047421875E-19	1.525237109375E-19	1.525237109375E-19
174	1.0E-13	1.1E-16	4.89	0.00E+00	0.00E+00	4.4254862578125E-23	1.525237109375E-19	7.626185546875E-19	7.626185546875E-19
176	6.7E-14	7.5E-17	4.95	0.00E+00	0.00E+00	2.21274312890625E-23	7.626185546875E-19	3.813092744140625E-19	3.813092744140625E-19
178	4.7E-14	5.3E-17	5.01	0.00E+00	0.00E+00	1.106371564453125E-23	3.813092744140625E-19	1.906896384375E-19	1.906896384375E-19
180	3.2E-14	3.6E-17	5.07	0.00E+00	0.00E+00	5.531857822265625E-24	1.906896384375E-19	9.53447896875E-20	9.53447896875E-20
1									

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: 4N  
 MODEL = BARRIER TIME= 1984.0; JUPITER DD= 1.8723  
 (ATOMIC NUMBER= 54; 94)  
 -63.0 DEG/133.4 DEG

ORIGINAL PAGE IS  
 OF POOR QUALITY

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N)

ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
39.5	9.15E-07	8.26E-07	8.54E-07	8.63E-07	8.70E-07	9.16E-07	9.20E-07	1.30E-06	1.39E-06	1.45E-06	1.29E-06
44.6	9.12E-07	9.15E-07	9.15E-07	9.16E-07	9.16E-07	9.34E-07	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.39E-06
50.0	1.01E-06	1.04E-06	1.04E-06	1.04E-06	1.04E-06	1.04E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.62E-06
56.0	1.12E-06	1.69E-06									
64.0	1.23E-06	1.64E-06									
72.0	1.40E-06	1.64E-06									
81.0	1.45E-06	1.64E-06									
91.0	1.51E-06	1.64E-06									
103.0	1.61E-06	1.64E-06									
116.0	1.64E-06										
131.0	1.64E-06										
148.0	1.62E-06										
167.0	1.62E-06										
189.0	1.68E-06										
213.0	1.77E-06										
240.0	1.43F-06	1.44E-06	1.45E-06								
271.0	4.79E-06	4.84E-06									
305.0	5.19E-06	5.23E-06									
344.0	5.19E-06										
388.7	5.15E-06	5.18E-06									
438.3	5.15E-06	5.16E-06									
494.2	5.16E-06	5.17E-06									
557.9	5.17E-06										
628.7	5.15E-06	5.16E-06									
709.0	5.11E-06	5.14E-06									
799.0	5.22F-06										
931.6	4.33E-06										
1017.0	4.33E-06										
1199.0	4.33E-06										
1299.0	4.33E-06										
1458.0	4.33E-06										
1644.0	4.33E-06										
1854.0	4.33E-06										
2091.0	4.33E-06										
2358.0	4.33E-06										
2660.0	4.33E-06										

TABLE E 33 B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC-RAY ANALYSIS (SOLAR MINIMUM) FOR: FE  
MODEL: BACH TIME: 1989-01-01 HERTSCHE: 1.6723  
ATOMIC-NUM: 26.1 ATOMIC-WE: 55.851  
DEG: 63.0 DEG: 133.4 KM: 4394

\*\*\*\*\* DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>/DAY\*MEV/N)

EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12 1.71E-04	1.39E-05	0.020	0.00E+00	0.00E+00	7.49E-06	5.81E-06	4.78E-06	3.35E-06	3.27E-06	3.75E-06	5.00E-06	5.05E-06	5.02E-06	5.02E-06
14 1.45E-04	1.10E-05	0.023	0.00E+00	7.45E-06	4.51E-06	3.54E-06	3.08E-06	2.99E-06	3.32E-06	4.43E-06	4.45E-06	4.77E-06	4.77E-06	4.77E-06
16 1.27E-04	9.90E-05	0.025	9.99E-05	9.99E-05	5.15E-06	4.24E-06	3.27E-06	2.97E-06	2.79E-06	3.12E-06	4.16E-06	4.44E-06	4.44E-06	4.44E-06
18 9.98E-05	9.50E-06	0.029	0.00E+00	6.58E-06	4.84E-06	3.59E-06	2.66E-06	2.66E-06	2.66E-06	3.12E-06	4.16E-06	4.20E-06	4.18E-06	4.18E-06
20 8.49E-05	8.84E-06	0.032	0.00E+00	5.99E-06	4.62E-06	3.59E-06	2.66E-06	2.66E-06	2.66E-06	3.12E-06	4.01E-06	4.19E-06	4.19E-06	4.19E-06
23 8.01E-05	8.44E-06	0.036	0.00E+00	5.55E-06	4.38E-06	3.59E-06	2.66E-06	2.66E-06	2.66E-06	3.12E-06	3.77E-06	3.77E-06	3.77E-06	3.77E-06
26 7.54E-05	7.94E-06	0.041	0.00E+00	5.12E-06	4.17E-06	3.57E-06	2.36E-06	2.36E-06	2.36E-06	2.65E-06	3.53E-06	3.55E-06	3.55E-06	3.55E-06
30 6.93E-05	7.49E-06	0.046	0.00E+00	4.75E-06	4.99E-06	3.59E-06	2.30E-06	2.30E-06	2.30E-06	2.45E-06	3.47E-06	3.45E-06	3.45E-06	3.45E-06
34 6.27E-05	6.94E-06	0.052	0.00E+00	4.48E-06	4.89E-06	3.61E-06	2.24E-06	2.24E-06	2.24E-06	2.31E-06	3.34E-06	3.32E-06	3.32E-06	3.32E-06
40 6.53E-05	6.36E-06	0.053	0.00E+00	4.21E-06	4.65E-06	3.63E-06	2.16E-06	2.16E-06	2.16E-06	2.23E-06	3.25E-06	3.23E-06	3.23E-06	3.23E-06
46 6.65E-05	5.90E-06	0.057	0.00E+00	3.94E-06	4.39E-06	3.65E-06	2.08E-06	2.08E-06	2.08E-06	2.13E-06	3.16E-06	3.16E-06	3.16E-06	3.16E-06
50 6.65E-05	5.50E-06	0.062	0.00E+00	3.71E-06	4.16E-06	3.67E-06	2.01E-06	2.01E-06	2.01E-06	2.06E-06	3.04E-06	3.03E-06	3.03E-06	3.03E-06
54 6.65E-05	5.10E-06	0.065	0.00E+00	3.50E-06	3.95E-06	3.73E-06	1.94E-06	1.94E-06	1.94E-06	1.99E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06
60 6.91E-05	4.70E-06	0.065	0.00E+00	3.30E-06	3.72E-06	3.59E-06	1.87E-06	1.87E-06	1.87E-06	1.95E-06	2.95E-06	2.95E-06	2.95E-06	2.95E-06
64 7.33E-05	4.10E-05	0.064	0.00E+00	3.10E-06	3.48E-06	3.48E-06	1.80E-06	1.80E-06	1.80E-06	1.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06
70 7.33E-05	3.70E-05	0.065	0.00E+00	2.91E-06	3.24E-06	3.24E-06	1.73E-06	1.73E-06	1.73E-06	1.87E-06	2.87E-06	2.87E-06	2.87E-06	2.87E-06
76 7.66E-05	3.10E-05	0.065	0.00E+00	2.71E-06	3.01E-06	3.01E-06	1.67E-06	1.67E-06	1.67E-06	1.80E-06	2.80E-06	2.80E-06	2.80E-06	2.80E-06
80 7.82E-05	2.70E-05	0.065	0.00E+00	2.51E-06	2.78E-06	2.78E-06	1.61E-06	1.61E-06	1.61E-06	1.74E-06	2.74E-06	2.74E-06	2.74E-06	2.74E-06
81 8.22E-05	2.30E-05	0.065	0.00E+00	2.31E-06	2.55E-06	2.55E-06	1.55E-06	1.55E-06	1.55E-06	1.68E-06	2.68E-06	2.68E-06	2.68E-06	2.68E-06
100 8.65E-05	1.95E-05	0.065	0.00E+00	2.12E-06	2.30E-06	2.30E-06	1.49E-06	1.49E-06	1.49E-06	1.61E-06	2.61E-06	2.61E-06	2.61E-06	2.61E-06
109 9.16E-05	1.65E-05	0.065	0.00E+00	1.93E-06	2.08E-06	2.08E-06	1.43E-06	1.43E-06	1.43E-06	1.55E-06	2.55E-06	2.55E-06	2.55E-06	2.55E-06
123 1.04E-04	2.35E-05	0.065	0.00E+00	1.73E-06	1.86E-06	1.86E-06	1.37E-06	1.37E-06	1.37E-06	1.49E-06	2.49E-06	2.49E-06	2.49E-06	2.49E-06
162 1.17E-04	2.92E-05	0.065	0.00E+00	1.53E-06	1.76E-06	1.76E-06	1.31E-06	1.31E-06	1.31E-06	1.43E-06	2.43E-06	2.43E-06	2.43E-06	2.43E-06
200 1.34E-04	3.50E-05	0.065	0.00E+00	1.33E-06	1.60E-06	1.60E-06	1.25E-06	1.25E-06	1.25E-06	1.37E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06
249 1.44E-04	4.10E-05	0.064	0.00E+00	1.13E-06	1.45E-06	1.45E-06	1.18E-06	1.18E-06	1.18E-06	1.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06
300 1.44E-04	4.71E-05	0.065	0.00E+00	9.30E-07	1.28E-06	1.28E-06	1.12E-06	1.12E-06	1.12E-06	1.24E-06	2.24E-06	2.24E-06	2.24E-06	2.24E-06
51 8.22E-05	1.14E-05	0.065	0.00E+00	7.40E-07	9.75E-06	9.75E-06	8.85E-06	8.85E-06	8.85E-06	9.97E-06	1.99E-06	1.99E-06	1.99E-06	1.99E-06
100 8.65E-05	1.10E-05	0.065	0.00E+00	6.21E-07	8.00E-06	8.00E-06	7.10E-06	7.10E-06	7.10E-06	8.20E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06
109 9.16E-05	1.06E-05	0.065	0.00E+00	5.02E-07	6.29E-06	6.29E-06	5.39E-06	5.39E-06	5.39E-06	6.49E-06	1.69E-06	1.69E-06	1.69E-06	1.69E-06
123 1.04E-04	2.35E-05	0.065	0.00E+00	4.81E-07	6.07E-06	6.07E-06	5.17E-06	5.17E-06	5.17E-06	6.27E-06	1.67E-06	1.67E-06	1.67E-06	1.67E-06
162 1.17E-04	2.92E-05	0.065	0.00E+00	4.60E-07	5.86E-06	5.86E-06	4.96E-06	4.96E-06	4.96E-06	5.06E-06	1.66E-06	1.66E-06	1.66E-06	1.66E-06
200 1.34E-04	3.50E-05	0.065	0.00E+00	4.39E-07	5.65E-06	5.65E-06	4.86E-06	4.86E-06	4.86E-06	4.96E-06	1.65E-06	1.65E-06	1.65E-06	1.65E-06
249 1.44E-04	4.10E-05	0.064	0.00E+00	4.18E-07	5.45E-06	5.45E-06	4.67E-06	4.67E-06	4.67E-06	4.77E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06
300 1.44E-04	4.71E-05	0.065	0.00E+00	3.97E-07	5.24E-06	5.24E-06	4.86E-06	4.86E-06	4.86E-06	4.96E-06	1.63E-06	1.63E-06	1.63E-06	1.63E-06
51 8.22E-05	1.44E-04	4.35E-05	0.065	3.76E-07	5.03E-06	5.03E-06	4.75E-06	4.75E-06	4.75E-06	4.85E-06	1.62E-06	1.62E-06	1.62E-06	1.62E-06
100 8.65E-05	1.30E-04	5.15E-05	0.065	3.55E-07	4.82E-06	4.82E-06	4.54E-06	4.54E-06	4.54E-06	4.64E-06	1.61E-06	1.61E-06	1.61E-06	1.61E-06
109 9.16E-05	1.16E-04	5.86E-05	0.065	3.34E-07	4.61E-06	4.61E-06	4.33E-06	4.33E-06	4.33E-06	4.43E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06
123 1.04E-04	5.66E-05	0.065	0.00E+00	3.13E-07	4.40E-06	4.40E-06	4.12E-06	4.12E-06	4.12E-06	4.22E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06
162 1.17E-04	6.35E-05	0.065	0.00E+00	2.92E-07	4.19E-06	4.19E-06	3.89E-06	3.89E-06	3.89E-06	3.99E-06	1.58E-06	1.58E-06	1.58E-06	1.58E-06
200 1.34E-04	7.04E-05	0.065	0.00E+00	2.71E-07	3.98E-06	3.98E-06	3.67E-06	3.67E-06	3.67E-06	3.77E-06	1.57E-06	1.57E-06	1.57E-06	1.57E-06
249 1.44E-04	7.75E-05	0.064	0.00E+00	2.50E-07	3.77E-06	3.77E-06	3.46E-06	3.46E-06	3.46E-06	3.56E-06	1.56E-06	1.56E-06	1.56E-06	1.56E-06
300 1.44E-04	8.46E-05	0.065	0.00E+00	2.29E-07	3.56E-06	3.56E-06	3.35E-06	3.35E-06	3.35E-06	3.45E-06	1.55E-06	1.55E-06	1.55E-06	1.55E-06
51 8.22E-05	9.15E-05	0.065	0.00E+00	2.08E-07	3.35E-06	3.35E-06	3.14E-06	3.14E-06	3.14E-06	3.24E-06	1.54E-06	1.54E-06	1.54E-06	1.54E-06
100 8.65E-05	9.85E-05	0.065	0.00E+00	1.87E-07	3.14E-06	3.14E-06	2.92E-06	2.92E-06	2.92E-06	3.02E-06	1.53E-06	1.53E-06	1.53E-06	1.53E-06
109 9.16E-05	1.05E-04	1.05E-05	0.065	1.66E-07	2.93E-06	2.93E-06	2.70E-06	2.70E-06	2.70E-06	2.80E-06	1.52E-06	1.52E-06	1.52E-06	1.52E-06
123 1.04E-04	1.12E-04	1.12E-05	0.065	1.45E-07	2.72E-06	2.72E-06	2.49E-06	2.49E-06	2.49E-06	2.59E-06	1.51E-06	1.51E-06	1.51E-06	1.51E-06
162 1.17E-04	1.19E-04	1.19E-05	0.065	1.24E-07	2.51E-06	2.51E-06	2.28E-06	2.28E-06	2.28E-06	2.38E-06	1.50E-06	1.50E-06	1.50E-06	1.50E-06
200 1.34E-04	1.26E-04	1.26E-05	0.065	1.03E-07	2.30E-06	2.30E-06	2.00E-06	2.00E-06	2.00E-06	2.10E-06	1.49E-06	1.49E-06	1.49E-06	1.49E-06
249 1.44E-04	1.33E-04	1.33E-05	0.064	8.2E-08	2.09E-06	2.09E-06	1.77E-06	1.77E-06	1.77E-06	1.87E-06	1.48E-06	1.48E-06	1.48E-06	1.48E-06
300 1.44E-04	1.40E-04	1.40E-05	0.065	6.1E-08	1.88E-06	1.88E-06	1.55E-06	1.55E-06	1.55E-06	1.65E-06	1.49E-06	1.49E-06	1.49E-06	1.49E-06
51 8.22E-05	1.47E-04	1.47E-05	0.065	4.0E-08	1.67E-06	1.67E-06	1.34E-06	1.34E-06	1.34E-06	1.44E-06	1.44E-06	1.44E-06	1.44E-06	1.44E-06
100 8.65E-05	1.54E-04	1.54E-05	0.065	1.9E-08	1.46E-06	1.46E-06	1.13E-06	1.13E-06	1.13E-06	1.23E-06	1.44E-06	1.44E-06	1.44E-06	1.44E-06
109 9.16E-05	1.61E-04	1.61E-05	0.065	9.5E-09	1.25E-06	1.25E-06	9.2E-07	9.2E-07	9.2E-07	1.02E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
123 1.04E-04	1.68E-04	1.68E-05	0.065	5.0E-09	1.04E-06	1.04E-06	5.7E-07	5.7E-07	5.7E-07	6.7E-07	1.46E-06	1.46E-06	1.46E-06	1.46E-06
162 1.17E-04	1.75E-04	1.75E-05	0.065	2.5E-09	8.3E-07	8.3E-07	2.3E-07	2.3E-07	2.3E-07	3.3E-07	1.47E-06	1.47E-06	1.47E-06	1.47E-06
200 1.34E-04	1.82E-04	1.82E-05	0.065	1.2E-09	6.6E-07	6.6E-07								

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: FF  
MODEL = BARDI; TIME = 1999-AUG-14; PERIOD = 1, 8723  
(ATOMIC-NUM = 204, ATOMIC-IC = 55, AS5)  
DEC/1344-1344 KM = 63.0

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>\*DAY\*MEV/N)

ENERGY	SHIELD THICKNESS (GM/CM <sup>2</sup> *#2)						1.0	3.0	5.0	10.0
	0.01	0.03	0.05	0.07	0.10	0.20				
39.62	8.1E-06	8.1E-06	8.09E-06	7.99E-06	7.91E-06	8.59E-06	9.29E-06	1.13E-05	1.20E-05	1.13E-05
50.68	6.6E-06	6.6E-06	6.57E-06	6.55E-06	6.52E-06	6.65E-06	6.71E-06	1.02E-05	1.23E-05	1.22E-05
56.38	9.2E-05	9.3E-05	9.37E-05	9.35E-05	9.32E-05	9.31E-05	9.31E-05	1.02E-05	1.30E-05	1.30E-05
56.92	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.33E-05	1.33E-05
62.26	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.48E-05	1.48E-05
64.49	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.25E-05	1.50E-05	1.50E-05
64.85	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	1.65E-05	1.65E-05
103.63	1.65E-05	1.65E-05	1.65E-05	1.65E-05	1.65E-05	1.65E-05	1.65E-05	1.65E-05	2.06E-05	2.06E-05
116.36	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.32E-05	2.32E-05
131.74	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.43E-05	2.43E-05
149.62	2.71E-05	2.71E-05	2.71E-05	2.71E-05	2.71E-05	2.71E-05	2.71E-05	2.71E-05	2.87E-05	2.87E-05
167.60	2.98E-05	2.98E-05	2.98E-05	2.98E-05	2.98E-05	2.98E-05	2.98E-05	2.98E-05	2.93E-05	2.93E-05
189.01	3.35E-05	3.35E-05	3.35E-05	3.35E-05	3.35E-05	3.35E-05	3.35E-05	3.35E-05	3.20E-05	3.20E-05
213.15	3.79E-05	3.79E-05	3.79E-05	3.79E-05	3.79E-05	3.79E-05	3.79E-05	3.79E-05	3.23E-05	3.23E-05
240.38	4.03E-05	4.03E-05	4.03E-05	4.03E-05	4.03E-05	4.03E-05	4.03E-05	4.03E-05	3.56E-05	3.56E-05
271.08	4.37E-05	4.37E-05	4.37E-05	4.37E-05	4.37E-05	4.37E-05	4.37E-05	4.37E-05	3.73E-05	3.73E-05
305.70	4.76E-05	4.76E-05	4.76E-05	4.76E-05	4.76E-05	4.76E-05	4.76E-05	4.76E-05	4.30E-05	4.30E-05
344.74	4.91E-05	4.91E-05	4.91E-05	4.91E-05	4.91E-05	4.91E-05	4.91E-05	4.91E-05	4.07E-05	4.07E-05
388.77	5.06E-05	5.06E-05	5.06E-05	5.06E-05	5.06E-05	5.06E-05	5.06E-05	5.06E-05	4.53E-05	4.53E-05
438.43	5.21E-05	5.21E-05	5.21E-05	5.21E-05	5.21E-05	5.21E-05	5.21E-05	5.21E-05	4.84E-05	4.84E-05
494.52	5.44E-05	5.44E-05	5.44E-05	5.44E-05	5.44E-05	5.44E-05	5.44E-05	5.44E-05	5.09E-05	5.09E-05
608.75	5.95E-05	5.95E-05	5.95E-05	5.95E-05	5.95E-05	5.95E-05	5.95E-05	5.95E-05	6.32E-05	6.32E-05
709.05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	7.5E-05	7.5E-05
709.66	4.7E-05	4.7E-05	4.7E-05	4.7E-05	4.7E-05	4.7E-05	4.7E-05	4.7E-05	5.6E-05	5.6E-05
901.79	4.3E-05	4.3E-05	4.3E-05	4.3E-05	4.3E-05	4.3E-05	4.3E-05	4.3E-05	4.30E-05	4.30E-05
1017.00	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05	3.52E-05	3.52E-05
1146.99	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.12E-05	3.12E-05
1293.30	3.18E-05	3.18E-05	3.18E-05	3.18E-05	3.18E-05	3.18E-05	3.18E-05	3.18E-05	2.89E-05	2.89E-05
1458.50	2.58E-05	2.58E-05	2.58E-05	2.58E-05	2.58E-05	2.58E-05	2.58E-05	2.58E-05	2.41E-05	2.41E-05
1854.90	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.17E-05	2.17E-05
2091.80	2.02E-05	2.02E-05	2.02E-05	2.02E-05	2.02E-05	2.02E-05	2.02E-05	2.02E-05	1.93E-05	1.93E-05
2458.90	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.68E-05	1.68E-05
2660.20	1.54E-05	1.54E-05	1.54E-05	1.54E-05	1.54E-05	1.54E-05	1.54E-05	1.54E-05	1.42E-05	1.42E-05

TABLE 34 B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: CD  
MODEL (BARRIER) DATE: 1989.2001; PER COF: 8723

(ATM-C NUMBER: 56; KM = 56; 94; NM = 56)

03.0 DEG/133.4 133.4 133.4 KM =

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DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/SEC/CME2/DAY\*NEW/N)

MAGNETOSPHERICALLY ATTEN- UATED ENERGY	ENERGY	0.01	0.03	0.05	0.07	0.10	0.15	0.20	0.30	0.50	1.0	3.0	5.0	10.0
12.1*02E-06	8.31E-08	0.20	0.00E+00	0.00E+00	4.89E-08	3.60E-08	2.97E-08	2.09E-08	2.06E-08	2.37E-08	3.16E-08	3.01E-08	3.17E-08	3.01E-08
14.6*3E-07	7.25E-08	0.23	0.00E+00	0.00E+00	4.61E-08	3.40E-08	2.80E-08	1.97E-08	1.94E-08	2.24E-08	3.00E-08	2.99E-08	2.82E-08	2.84E-08
16.7*0E-07	6.45E-08	0.25	0.00E+00	0.00E+00	3.99E-08	3.19E-08	2.63E-08	1.72E-08	1.63E-08	2.02E-08	2.82E-08	2.67E-08	2.56E-08	2.67E-08
18.5*9E-07	5.70E-08	0.27	0.00E+00	0.00E+00	3.74E-08	3.00E-08	2.47E-08	1.74E-08	1.72E-08	1.98E-08	2.52E-08	2.39E-08	2.52E-08	2.39E-08
20.5*2E-07	5.28E-08	0.3	0.00E+00	0.00E+00	3.57E-08	2.86E-08	2.36E-08	1.64E-08	1.64E-08	1.89E-08	2.52E-08	2.36E-08	2.38E-08	2.36E-08
23.4*8E-07	5.08E-08	0.36	0.00E+00	0.00E+00	3.43E-08	2.71E-08	2.23E-08	1.55E-08	1.55E-08	1.77E-08	2.38E-08	2.26E-08	2.38E-08	2.26E-08
26.4*5E-07	5.00E-08	0.4	0.00E+00	0.00E+00	3.17E-08	2.49E-08	2.07E-08	1.48E-08	1.48E-08	1.65E-08	2.24E-08	2.18E-08	2.24E-08	2.18E-08
30.4*0E-07	4.78E-08	0.45	0.00E+00	0.00E+00	2.99E-08	2.38E-08	1.95E-08	1.42E-08	1.42E-08	1.53E-08	2.18E-08	2.10E-08	2.18E-08	2.10E-08
34.4*0E-07	4.90E-08	0.5	0.00E+00	0.00E+00	2.85E-08	2.39E-08	1.92E-08	1.39E-08	1.39E-08	1.50E-08	2.16E-08	2.12E-08	2.16E-08	2.12E-08
40.3*9E-07	5.05E-08	0.55	0.00E+00	0.00E+00	2.74E-08	2.35E-08	1.89E-08	1.36E-08	1.36E-08	1.48E-08	2.13E-08	2.10E-08	2.13E-08	2.10E-08
46.3*4E-07	5.23E-08	0.6	0.00E+00	0.00E+00	2.67E-08	2.30E-08	1.85E-08	1.33E-08	1.33E-08	1.46E-08	2.10E-08	2.07E-08	2.10E-08	2.07E-08
50.4*0E-07	5.45E-08	0.65	0.00E+00	0.00E+00	2.61E-08	2.25E-08	1.82E-08	1.31E-08	1.31E-08	1.45E-08	2.08E-08	2.05E-08	2.08E-08	2.05E-08
60.4*1E-07	6.38E-08	0.7	0.00E+00	0.00E+00	2.55E-08	2.19E-08	1.77E-08	1.29E-08	1.29E-08	1.42E-08	2.02E-08	1.99E-08	2.02E-08	1.99E-08
70.4*2E-07	6.54E-08	0.75	0.00E+00	0.00E+00	2.50E-08	2.14E-08	1.73E-08	1.25E-08	1.25E-08	1.39E-08	1.95E-08	1.92E-08	1.95E-08	1.92E-08
76.4*5E-07	6.77E-08	0.8	0.00E+00	0.00E+00	2.45E-08	2.09E-08	1.69E-08	1.21E-08	1.21E-08	1.35E-08	1.90E-08	1.87E-08	1.87E-08	1.87E-08
89.4*6E-07	6.97E-08	0.85	0.00E+00	0.00E+00	2.40E-08	2.04E-08	1.65E-08	1.17E-08	1.17E-08	1.31E-08	1.85E-08	1.82E-08	1.82E-08	1.82E-08
91.4*9E-07	7.26E-08	0.9	0.00E+00	0.00E+00	2.35E-08	1.99E-08	1.61E-08	1.13E-08	1.13E-08	1.27E-08	1.79E-08	1.76E-08	1.79E-08	1.76E-08
109.5*5E-07	1.01E-07	1.0	0.00E+00	0.00E+00	2.30E-08	1.94E-08	1.57E-08	1.09E-08	1.09E-08	1.23E-08	1.73E-08	1.70E-08	1.73E-08	1.70E-08
123.6*2E-07	1.14E-07	1.14E-07	0.00E+00	0.00E+00	2.25E-08	1.89E-08	1.53E-08	1.04E-08	1.04E-08	1.18E-08	1.68E-08	1.65E-08	1.68E-08	1.65E-08
162.7*7E-07	1.75E-07	1.3	0.00E+00	0.00E+00	2.10E-08	1.84E-08	1.48E-08	9.9E-09	9.9E-09	1.12E-08	1.63E-08	1.60E-08	1.63E-08	1.60E-08
200.9*0E-07	2.14E-07	1.7	0.00E+00	0.00E+00	2.05E-08	1.79E-08	1.43E-08	9.4E-09	9.4E-09	1.07E-08	1.52E-08	1.50E-08	1.52E-08	1.50E-08
249.6*4E-07	2.54E-07	4.04	0.00E+00	0.00E+00	1.99E-08	1.74E-08	1.38E-08	8.9E-09	8.9E-09	1.02E-08	1.45E-08	1.42E-08	1.45E-08	1.42E-08
300.6*8E-07	2.84E-07	2.94E-07	5.13	0.00E+00	4.39E-08	2.71E-08	1.33E-08	8.4E-09	8.4E-09	9.7E-09	1.40E-08	1.37E-08	1.40E-08	1.37E-08
313.8*8E-07	3.22E-07	5.79	0.00E+00	4.39E-08	2.66E-08	2.56E-08	1.28E-08	7.9E-09	7.9E-09	9.2E-09	1.37E-08	1.34E-08	1.37E-08	1.34E-08
397.8*8E-07	3.22E-07	5.79	0.00E+00	4.39E-08	2.61E-08	2.51E-08	1.23E-08	7.4E-09	7.4E-09	8.7E-09	1.33E-08	1.30E-08	1.33E-08	1.30E-08
400.8*8E-07	3.22E-07	5.79	0.00E+00	4.39E-08	2.61E-08	2.46E-08	1.20E-08	7.0E-09	7.0E-09	8.2E-09	1.30E-08	1.27E-08	1.30E-08	1.27E-08
500.8*4E-07	3.3E-07	7.36	0.00E+00	4.09E-08	3.02E-08	2.37E-08	1.16E-08	6.6E-09	6.6E-09	7.7E-09	1.27E-08	1.24E-08	1.27E-08	1.24E-08
505.8*7E-07	3.3E-07	9.36	0.00E+00	4.09E-08	3.02E-08	2.32E-08	1.12E-08	6.2E-09	6.2E-09	7.3E-09	1.23E-08	1.20E-08	1.23E-08	1.20E-08
600.7*7E-07	3.2E-07	9.36	0.00E+00	3.99E-08	2.97E-08	2.27E-08	1.08E-08	5.8E-09	5.8E-09	6.9E-09	1.19E-08	1.16E-08	1.19E-08	1.16E-08
660.7*5E-07	3.14E-07	3.14E-07	1.05	0.00E+00	3.99E-08	2.92E-08	2.22E-08	1.04E-08	1.04E-08	1.15E-08	1.15E-08	1.12E-08	1.15E-08	1.12E-08
700.7*0E-07	3.14E-07	3.14E-07	1.15	0.00E+00	3.99E-08	2.87E-08	2.17E-08	1.00E-08	1.00E-08	1.11E-08	1.11E-08	1.08E-08	1.11E-08	1.08E-08
800.6*3E-07	2.94E-07	1.5	0.00E+00	3.99E-08	2.82E-08	2.12E-08	9.6E-09	9.6E-09	1.06E-08	1.06E-08	1.03E-08	1.06E-08	1.03E-08	1.03E-08
865.5*8E-07	2.84E-07	1.5	0.00E+00	3.99E-08	2.77E-08	2.07E-08	9.2E-09	9.2E-09	9.8E-09	9.8E-09	9.5E-09	9.8E-09	9.5E-09	9.8E-09
900.5*6E-07	2.74E-07	1.9	0.00E+00	3.99E-08	2.72E-08	2.02E-08	8.8E-09	8.8E-09	9.4E-09	9.4E-09	9.1E-09	9.4E-09	9.1E-09	9.4E-09
1000.5*0E-07	2.44E-07	1.9	0.00E+00	3.99E-08	2.67E-08	1.97E-08	8.4E-09	8.4E-09	9.0E-09	9.0E-09	8.7E-09	9.0E-09	8.7E-09	9.0E-09
1147.4*1E-07	2.24E-07	2.147	0.00E+00	3.99E-08	2.62E-08	1.92E-08	8.0E-09	8.0E-09	8.6E-09	8.6E-09	8.3E-09	8.6E-09	8.3E-09	8.6E-09
1145.2*7E-07	2.147E-07	2.147	0.00E+00	3.99E-08	2.57E-08	1.87E-08	7.6E-09	7.6E-09	8.2E-09	8.2E-09	7.9E-09	8.2E-09	7.9E-09	8.2E-09
2600.1*3E-07	1.92E-07	1.92	0.00E+00	3.99E-08	2.52E-08	1.82E-08	7.2E-09	7.2E-09	7.8E-09	7.8E-09	7.5E-09	7.8E-09	7.5E-09	7.8E-09
2129.1*7E-07	1.72E-07	2.129	0.00E+00	3.99E-08	2.47E-08	1.77E-08	6.8E-09	6.8E-09	7.4E-09	7.4E-09	7.1E-09	7.4E-09	7.1E-09	7.4E-09
2977.1*0E-07	1.44E-07	3.5	0.00E+00	3.99E-08	2.42E-08	1.72E-08	6.4E-09	6.4E-09	7.0E-09	7.0E-09	6.7E-09	7.0E-09	6.7E-09	7.0E-09

*TA B L E 35A*

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPFX COSMIC RAY ANALYSIS (SOLAN MINIMUM) FOR: CO  
 M1NEL = BARRI TIME= 1989.2+0.1\*PERIOD= 1.8723  
 (ATOMIC-NUM= 27; ATOMIC-WE= 58.94)  
 63.0 DEG/1334-134 KM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CM<sup>2</sup>\*DAY\*MEV/N)

ENERGY	SHIELD THICKNESS (GM/CHARGE)					
	0.01	0.03	0.05	0.07	0.10	0.50
	1.0	3.0	5.0	10.0		
3.94E-02	4.90E-08	4.86E-08	4.75E-08	4.78E-08	5.21E-08	5.65E-08
4.94E-02	5.26E-08	5.09E-08	5.02E-08	5.09E-08	5.15E-08	5.21E-08
5.94E-02	5.52E-08	5.39E-08	5.22E-08	5.19E-08	5.14E-08	5.10E-08
6.94E-02	5.72E-08	5.54E-08	5.36E-08	5.23E-08	5.19E-08	5.09E-08
7.94E-02	6.12E-08	5.96E-08	5.65E-08	5.36E-08	5.02E-08	4.73E-08
8.94E-02	6.74E-08	6.93E-08	6.71E-08	6.52E-08	6.19E-08	5.99E-08
9.94E-02	7.66E-08	7.56E-08	7.53E-08	7.68E-08	7.64E-08	7.30E-08
10.94E-02	8.57E-08	8.57E-08	8.55E-08	8.66E-08	8.54E-08	7.31E-08
11.94E-02	9.35E-08	9.52E-08	9.53E-08	9.61E-08	9.27E-08	8.08E-08
12.94E-02	1.10E-07	1.11E-07	1.12E-07	1.13E-07	1.07E-07	1.05E-07
13.94E-02	1.23E-07	1.25E-07	1.27E-07	1.28E-07	1.22E-07	1.18E-07
14.94E-02	1.40E-07	1.44E-07	1.45E-07	1.46E-07	1.34E-07	1.34E-07
15.94E-02	1.63E-07	1.66E-07	1.66E-07	1.66E-07	1.54E-07	1.54E-07
16.94E-02	1.79E-07	1.80E-07	1.80E-07	1.81E-07	1.69E-07	1.69E-07
17.94E-02	2.01E-07	2.03E-07	2.04E-07	2.05E-07	2.01E-07	2.01E-07
21.3E-02	2.23E-07	2.31E-07	2.31E-07	2.31E-07	2.31E-07	2.31E-07
24.0E-02	2.42E-07	2.44E-07	2.44E-07	2.44E-07	2.42E-07	2.42E-07
27.7E-02	2.62E-07	2.62E-07	2.63E-07	2.63E-07	2.59E-07	2.59E-07
30.5E-02	2.83E-07	2.83E-07	2.85E-07	2.86E-07	2.84E-07	2.84E-07
34.4E-02	3.05E-07	3.05E-07	3.05E-07	3.05E-07	3.05E-07	3.05E-07
38.8E-02	3.29E-07	3.29E-07	3.29E-07	3.29E-07	3.29E-07	3.29E-07
43.8E-02	3.60E-07	3.60E-07	3.60E-07	3.60E-07	3.60E-07	3.60E-07
49.4E-02	3.92E-07	3.92E-07	3.92E-07	3.92E-07	3.92E-07	3.92E-07
55.7E-02	4.20E-07	4.20E-07	4.20E-07	4.20E-07	4.20E-07	4.20E-07
62.5E-02	4.42E-07	4.42E-07	4.42E-07	4.42E-07	4.42E-07	4.42E-07
70.9E-02	4.74E-07	4.74E-07	4.74E-07	4.74E-07	4.74E-07	4.74E-07
79.7E-02	5.15E-07	5.15E-07	5.15E-07	5.15E-07	5.15E-07	5.15E-07
89.1E-02	5.64E-07	5.64E-07	5.64E-07	5.64E-07	5.64E-07	5.64E-07
99.1E-02	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07
109.9E-02	6.71E-07	6.71E-07	6.71E-07	6.71E-07	6.71E-07	6.71E-07
120.9E-02	7.31E-07	7.31E-07	7.31E-07	7.31E-07	7.31E-07	7.31E-07
144.9E-02	9.14E-07	9.14E-07	9.14E-07	9.14E-07	9.14E-07	9.14E-07
164.4E-02	1.171E-07	1.171E-07	1.171E-07	1.171E-07	1.171E-07	1.171E-07
185.1E-02	1.355E-07	1.355E-07	1.355E-07	1.355E-07	1.355E-07	1.355E-07
209.1E-02	1.20E-07	1.20E-07	1.19E-07	1.18E-07	1.17E-07	1.16E-07
235.8E-02	1.07E-07	1.06E-07	1.05E-07	1.04E-07	1.03E-07	1.02E-07
266.0E-02	9.14E-08	9.04E-08	8.92E-08	8.77E-08	8.59E-08	8.38E-08

TABLE 35 B

ORIGINAL PAGE IS  
OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: NM  
MODEL = BARI; TIME = 1959-2001; PERIOD = 1..0723  
LAT/IC-NUM = 281; ATOMIC-NUM = 1334..RM  
6.3..0 DEG/13.3..0 1.334..RM

DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CH**2*DAY*MEV/N)															
SHIELD THICKNESS (GM/CH**2)															
MAGNETOSPHERICALLY	EN- ERGY	UNATTEN- UATED	ATTEN- UATED	ENERGY	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
12	8.19E-06	6.65E-07	0.20	0.00E+00	0.025	0.07	3.55E-07	2.73E-07	2.21E-07	1.80E-07	1.78E-07	2.08E-07	2.5AE-07	2.71E-07	2.51E-07
14	6.68E-06	5.80E-07	0.23	0.00E+00	0.76E-07	3.39E-07	2.57E-07	2.08E-07	1.65E-07	1.46E-07	1.66E-07	2.45E-07	2.45E-07	2.45E-07	2.51E-07
16	5.59E-06	4.14E-07	0.25	0.00E+00	0.51E-07	2.95E-07	2.06E-07	1.62E-07	1.41E-07	1.21E-07	1.38E-07	2.26E-07	2.26E-07	2.26E-07	2.33E-07
18	4.13E-06	3.56E-07	0.29	0.00E+00	0.32E-07	2.06E-07	1.42E-07	1.20E-07	1.04E-07	8.95E-08	9.85E-08	1.75E-07	1.75E-07	1.75E-07	1.75E-07
20	3.11E-06	2.55E-07	0.32	0.00E+00	0.21E-07	1.35E-07	8.82E-08	7.42E-08	6.15E-08	4.15E-08	4.92E-08	7.05E-07	7.05E-07	7.05E-07	7.05E-07
23	2.86E-06	2.05E-07	0.36	0.00E+00	0.15E-07	1.25E-07	6.62E-08	5.26E-08	3.94E-08	2.64E-08	3.45E-08	5.75E-07	5.75E-07	5.75E-07	5.75E-07
26	2.61E-06	1.62E-07	0.40	0.00E+00	0.11E-07	9.42E-08	4.32E-08	3.25E-08	2.50E-08	1.91E-08	2.50E-08	4.15E-07	4.15E-07	4.15E-07	4.15E-07
30	2.34E-06	1.32E-07	0.46	0.00E+00	0.85E-07	7.46E-08	3.43E-08	2.43E-08	1.79E-08	1.25E-08	1.86E-08	3.15E-07	3.15E-07	3.15E-07	3.15E-07
40	1.38E-06	1.08E-07	0.59	0.00E+00	0.559	0.00E+00	2.25E-07	1.74E-07	1.50E-07	1.15E-07	1.15E-07	1.45E-07	1.45E-07	1.45E-07	1.45E-07
40	1.38E-06	1.08E-07	0.66	0.00E+00	0.667	0.00E+00	2.18E-07	1.68E-07	1.46E-07	1.10E-07	1.10E-07	1.29E-07	1.29E-07	1.29E-07	1.29E-07
50	3.13E-06	4.52E-07	0.75	0.00E+00	0.750	0.00E+00	4.37E-07	2.14E-07	1.65E-07	1.14E-07	1.14E-07	1.26E-07	1.26E-07	1.26E-07	1.26E-07
54	3.21E-06	4.68E-07	0.85	0.00E+00	0.850	0.00E+00	4.56E-07	2.10E-07	1.62E-07	1.10E-07	1.10E-07	1.24E-07	1.24E-07	1.24E-07	1.24E-07
60	3.33E-06	5.04E-07	0.95	0.00E+00	0.950	0.00E+00	4.77E-07	2.06E-07	1.60E-07	1.06E-07	1.06E-07	1.20E-07	1.20E-07	1.20E-07	1.20E-07
64	3.42E-06	5.27E-07	1.08	0.00E+00	1.080	0.00E+00	4.93E-07	2.03E-07	1.58E-07	1.05E-07	1.05E-07	1.28E-07	1.28E-07	1.28E-07	1.28E-07
70	3.54E-06	5.75E-07	1.21	0.00E+00	1.210	0.00E+00	5.14E-07	2.01E-07	1.56E-07	1.04E-07	1.04E-07	1.32E-07	1.32E-07	1.32E-07	1.32E-07
76	3.67E-06	6.22E-07	1.37	0.00E+00	1.370	0.00E+00	5.30E-07	1.99E-07	1.54E-07	1.03E-07	1.03E-07	1.38E-07	1.38E-07	1.38E-07	1.38E-07
80	3.75E-06	6.54E-07	1.54	0.00E+00	1.540	0.00E+00	5.47E-07	1.97E-07	1.51E-07	1.01E-07	1.01E-07	1.40E-07	1.40E-07	1.40E-07	1.40E-07
99	3.96E-06	7.33E-07	1.74	0.00E+00	1.740	0.00E+00	5.86E-07	2.00E-07	1.47E-07	9.90E-08	9.90E-08	1.49E-07	1.49E-07	1.49E-07	1.49E-07
91	3.98E-06	7.41E-07	1.96	0.00E+00	1.960	0.00E+00	5.99E-07	2.01E-07	1.48E-07	9.95E-08	9.95E-08	1.50E-07	1.50E-07	1.50E-07	1.50E-07
100	4.17E-06	8.11E-07	2.21	0.00E+00	2.210	0.00E+00	6.37E-07	2.02E-07	1.49E-07	9.90E-08	9.90E-08	1.51E-07	1.51E-07	1.51E-07	1.51E-07
109	4.40E-06	8.80E-07	2.50	0.00E+00	2.500	0.00E+00	6.77E-07	2.01E-07	1.48E-07	9.86E-08	9.86E-08	1.52E-07	1.52E-07	1.52E-07	1.52E-07
133	4.98E-06	1.13E-06	2.81	0.00E+00	2.810	0.00E+00	7.18E-07	2.00E-07	1.48E-07	9.81E-08	9.81E-08	1.54E-07	1.54E-07	1.54E-07	1.54E-07
162	5.62E-06	1.40E-06	3.17	0.00E+00	3.170	0.00E+00	7.59E-07	1.99E-07	1.48E-07	9.76E-08	9.76E-08	1.56E-07	1.56E-07	1.56E-07	1.56E-07
200	6.41E-06	1.71E-06	3.58	0.00E+00	3.580	0.00E+00	8.00E-07	1.98E-07	1.48E-07	9.72E-08	9.72E-08	1.60E-07	1.60E-07	1.60E-07	1.60E-07
249	6.77E-06	2.04E-06	4.04	0.00E+00	4.040	0.00E+00	8.40E-07	1.97E-07	1.48E-07	9.65E-08	9.65E-08	1.64E-07	1.64E-07	1.64E-07	1.64E-07
309	7.84E-06	2.26E-06	4.65	0.00E+00	4.650	0.00E+00	8.80E-07	1.96E-07	1.48E-07	9.60E-08	9.60E-08	1.68E-07	1.68E-07	1.68E-07	1.68E-07
313	7.95E-06	2.32E-06	5.13	0.00E+00	5.130	0.00E+00	9.15E-07	1.95E-07	1.48E-07	9.55E-08	9.55E-08	1.72E-07	1.72E-07	1.72E-07	1.72E-07
397	7.99E-06	2.57E-06	5.59	0.00E+00	5.590	0.00E+00	9.55E-07	1.94E-07	1.48E-07	9.50E-08	9.50E-08	1.76E-07	1.76E-07	1.76E-07	1.76E-07
400	7.99E-06	2.57E-06	7.53	0.00E+00	7.530	0.00E+00	9.85E-07	1.93E-07	1.48E-07	9.45E-08	9.45E-08	1.80E-07	1.80E-07	1.80E-07	1.80E-07
509	6.67E-06	6.67E-06	7.67	0.00E+00	7.670	0.00E+00	1.02E-06	1.92E-07	1.48E-07	9.40E-08	9.40E-08	1.84E-07	1.84E-07	1.84E-07	1.84E-07
600	6.77E-06	7.69E-06	8.16	0.00E+00	8.160	0.00E+00	1.06E-06	1.91E-07	1.48E-07	9.35E-08	9.35E-08	1.88E-07	1.88E-07	1.88E-07	1.88E-07
760	6.84E-06	8.49E-06	9.43	0.00E+00	9.430	0.00E+00	1.19E-06	1.90E-07	1.48E-07	9.30E-08	9.30E-08	1.92E-07	1.92E-07	1.92E-07	1.92E-07
800	6.96E-06	9.22E-06	1.15	0.00E+00	1.150	0.00E+00	1.34E-06	1.89E-07	1.48E-07	9.25E-08	9.25E-08	1.96E-07	1.96E-07	1.96E-07	1.96E-07
865	4.67E-06	1.24E-06	1.45	0.00E+00	1.450	0.00E+00	1.76E-06	1.88E-07	1.48E-07	9.20E-08	9.20E-08	2.02E-07	2.02E-07	2.02E-07	2.02E-07
900	4.44BE-06	1.27E-06	1.71	0.00E+00	1.710	0.00E+00	2.04E-06	1.87E-07	1.48E-07	9.15E-08	9.15E-08	2.07E-07	2.07E-07	2.07E-07	2.07E-07
1000	4.91E-06	1.98E-06	1.92	0.00E+00	1.920	0.00E+00	2.66E-06	1.86E-07	1.48E-07	9.10E-08	9.10E-08	2.12E-07	2.12E-07	2.12E-07	2.12E-07
1147	3.93E-06	1.76E-06	2.16	0.00E+00	2.160	0.00E+00	2.93E-06	1.85E-07	1.48E-07	9.05E-08	9.05E-08	2.17E-07	2.17E-07	2.17E-07	2.17E-07
1545	2.22E-06	1.32E-06	2.44	0.00E+00	2.440	0.00E+00	2.67E-06	1.84E-07	1.48E-07	9.00E-08	9.00E-08	2.22E-07	2.22E-07	2.22E-07	2.22E-07
2000	1.56E-06	9.59E-07	2.76	0.00E+00	2.760	0.00E+00	3.16E-06	1.83E-07	1.48E-07	8.95E-08	8.95E-08	2.28E-07	2.28E-07	2.28E-07	2.28E-07
2129	1.43E-06	9.59E-07	3.13	0.00E+00	3.130	0.00E+00	3.37E-06	1.82E-07	1.48E-07	8.90E-08	8.90E-08	2.32E-07	2.32E-07	2.32E-07	2.32E-07
2977	8.29E-07	6.78E-07	3.413	0.00E+00	3.413	0.00E+00	3.70E-07	1.81E-07	1.48E-07	8.85E-08	8.85E-08	3.46E-07	3.46E-07	3.46E-07	3.46E-07

TABLE 36 A

ORIGINAL PAGE IS  
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TOPEX COSMIC RAY ANALYSIS (SOLAR MINIMUM) FOR: NI  
MODEL: BARTI TIME: 1989.2.01 PERIOD: 1.9723  
(ATOMIC-NUM: 28; ATOMIC-W: 58.71)  
43.0 DEG43.34-1334 KM

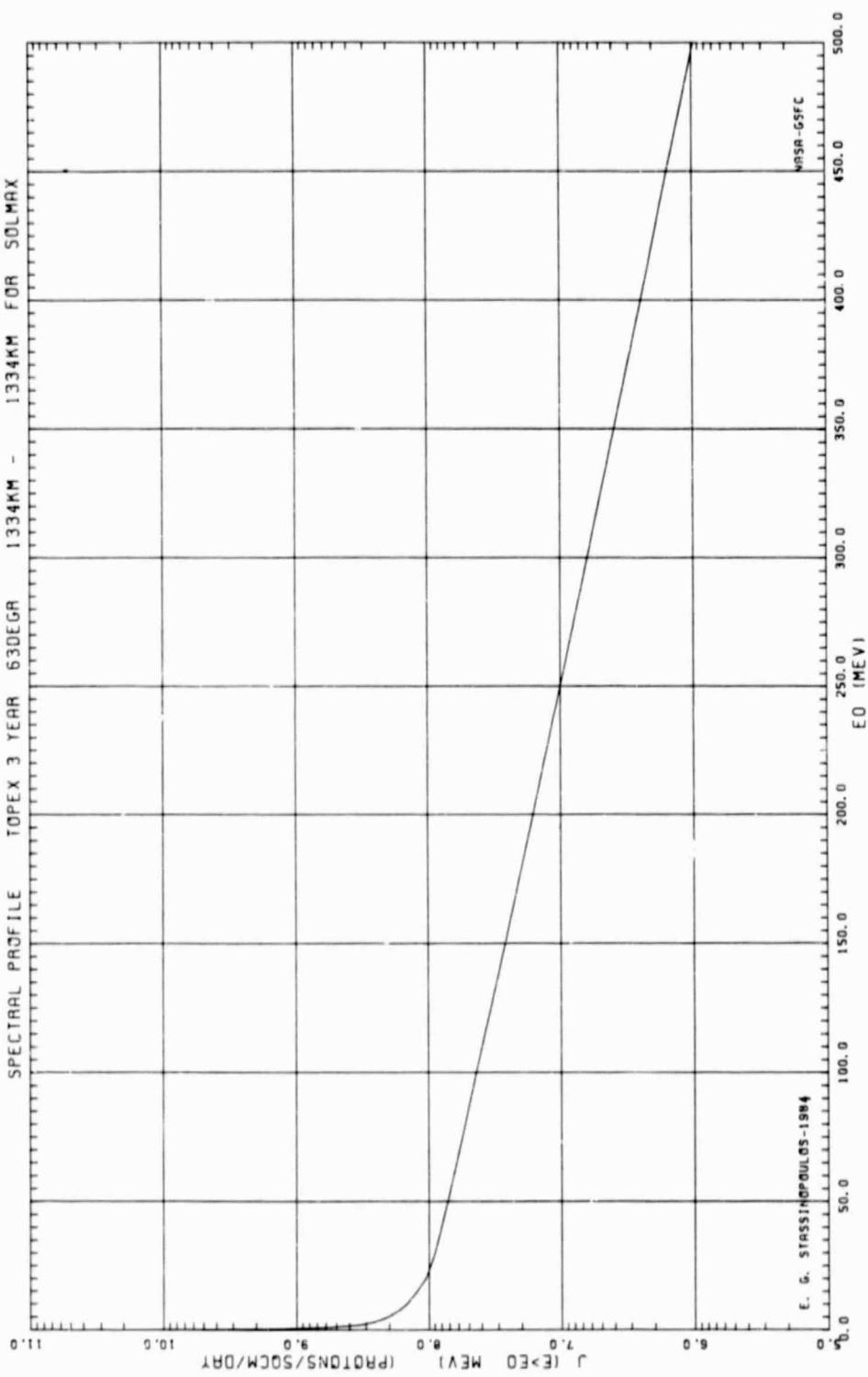
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL ALUMINUM SHIELDS (PARTICLES/CMS<sup>2</sup>•DAY•MEV/N)

	SHIELD THICKNESS (CMS)	0.01	0.03	0.05	0.07	0.10	0.30	0.50	1.0	3.0	5.0	10.0
3.9E-02	3.92E-07	3.94E-07	3.91E-07	3.79E-07	3.81E-07	3.85E-07	4.03E-07	4.76E-07	5.71E-07	5.63E-07	5.49E-07	5.1E-07
4.1E-02	4.04E-07	4.04E-07	4.04E-07	4.04E-07	4.04E-07	4.04E-07	4.13E-07	4.29E-07	4.45E-07	4.58E-07	4.68E-07	4.9E-07
5.0E-02	5.04E-07	4.47E-07	4.33E-07	4.45E-07								
5.6E-02	5.61E-07	4.86E-07	4.94E-07	4.97E-07	5.0E-07	5.0E-07	5.38E-07	5.47E-07	5.47E-07	5.47E-07	5.47E-07	5.47E-07
6.4E-02	6.40E-07	5.34E-07	5.45E-07	5.45E-07	5.39E-07	5.39E-07	5.19E-07	5.06E-07	5.06E-07	5.06E-07	5.06E-07	5.06E-07
7.2E-02	6.93E-07	6.06E-07	6.06E-07	6.06E-07	6.17E-07	6.17E-07	6.58E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07
8.1E-02	6.83E-07	6.87E-07	6.77E-07	6.85E-07	6.85E-07	6.85E-07	6.82E-07	6.71E-07	6.71E-07	6.71E-07	6.71E-07	6.71E-07
9.1E-02	7.48E-07	7.61E-07	7.64E-07	7.67E-07	7.66E-07	7.66E-07	7.65E-07	7.65E-07	7.65E-07	7.65E-07	7.65E-07	7.65E-07
10.3E-02	8.62E-07	8.86E-07	8.94E-07	8.90E-07	8.92E-07	8.91E-07	8.91E-07	8.90E-07	8.90E-07	8.90E-07	8.90E-07	8.90E-07
11.6E-02	9.89E-07	1.00E-06	1.01E-06	1.01E-06	1.02E-06							
13.1E-02	1.12E-06	1.15E-06	1.16E-06	1.17E-06								
14.8E-02	1.30E-06	1.31E-06	1.32E-06									
16.7E-02	1.40E-06	1.43E-06										
18.9E-02	1.61E-06	1.63E-06	1.64E-06									
21.3E-02	1.82E-06	1.85E-06										
24.4E-02	1.92E-06	1.94E-06										
27.0E-02	2.03E-06	2.09E-06	2.10E-06									
34.4E-02	2.36E-06	2.39E-06	2.40E-06									
34.8E-02	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06	2.47E-06
34.9E-02	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06	2.56E-06
55.7E-02	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06
70.9E-02	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06	2.38E-06
93.2E-02	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
101.1E-02	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06
114.9E-02	1.73E-06	1.70E-06	1.68E-06	1.66E-06	1.64E-06	1.62E-06	1.60E-06	1.58E-06	1.56E-06	1.54E-06	1.52E-06	1.50E-06
122.3E-02	1.43E-06	1.50E-06										
145.5E-02	1.36E-06	1.34E-06	1.34E-06	1.33E-06	1.32E-06							
164.4E-02	1.26E-06	1.21E-06	1.20E-06	1.20E-06	1.18E-06	1.17E-06	1.16E-06	1.15E-06	1.14E-06	1.13E-06	1.12E-06	1.11E-06
189.9E-02	1.08E-06	1.06E-06	1.05E-06	1.05E-06	1.03E-06	1.02E-06	1.02E-06	1.01E-06	1.01E-06	1.01E-06	1.01E-06	1.01E-06
203.9E-02	9.63E-07	9.57E-07	9.50E-07	9.44E-07	9.37E-07	9.32E-07	9.28E-07	9.24E-07	9.20E-07	9.16E-07	9.12E-07	9.08E-07
235.9E-02	6.54E-07	4.4AE-07	4.4AE-07	4.3SE-07								
264.9E-02	7.31E-07	7.22E-07	7.21E-07									

TABLE 36 B

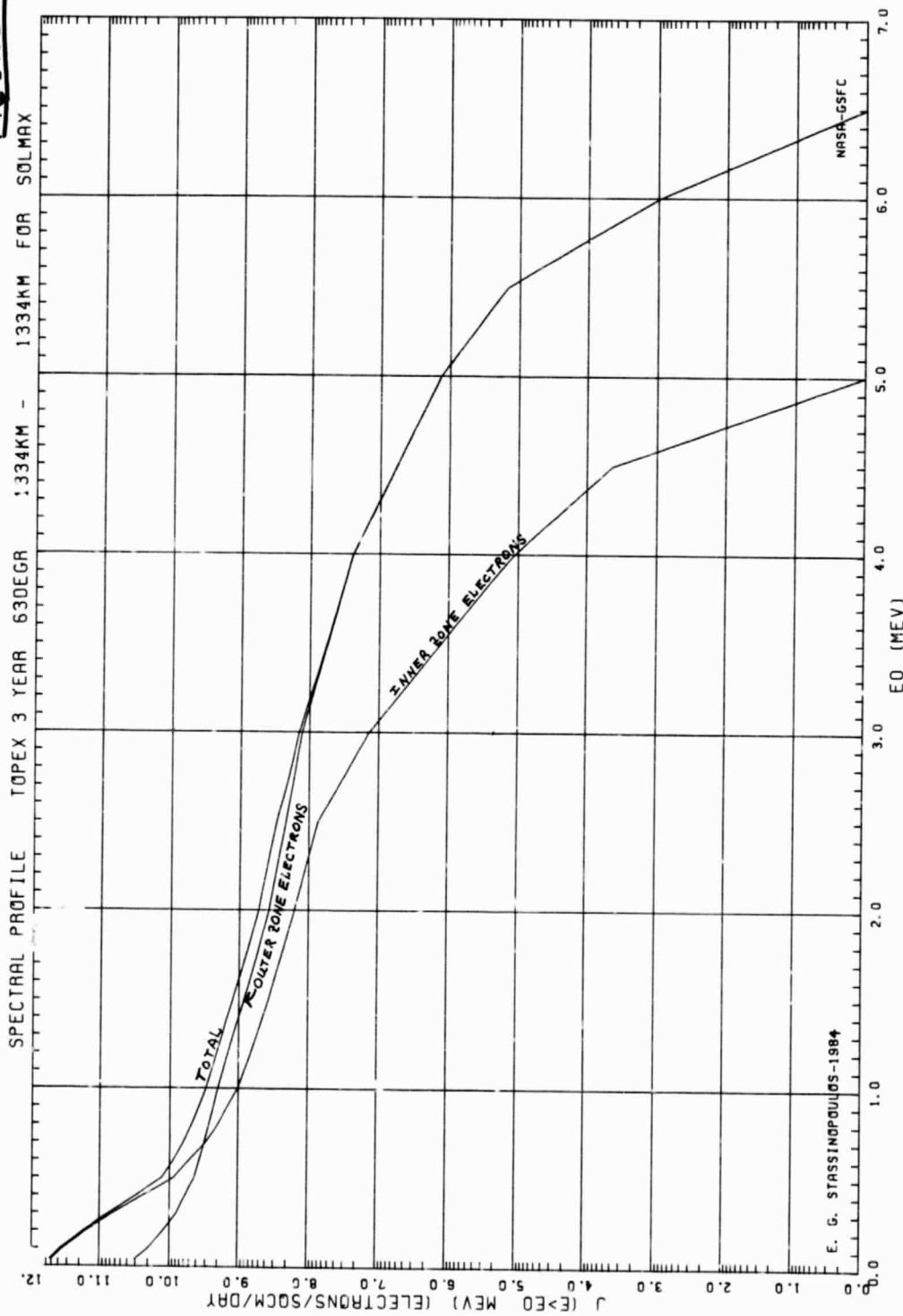
ORIGINAL PAGE IS  
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FIGURE 1



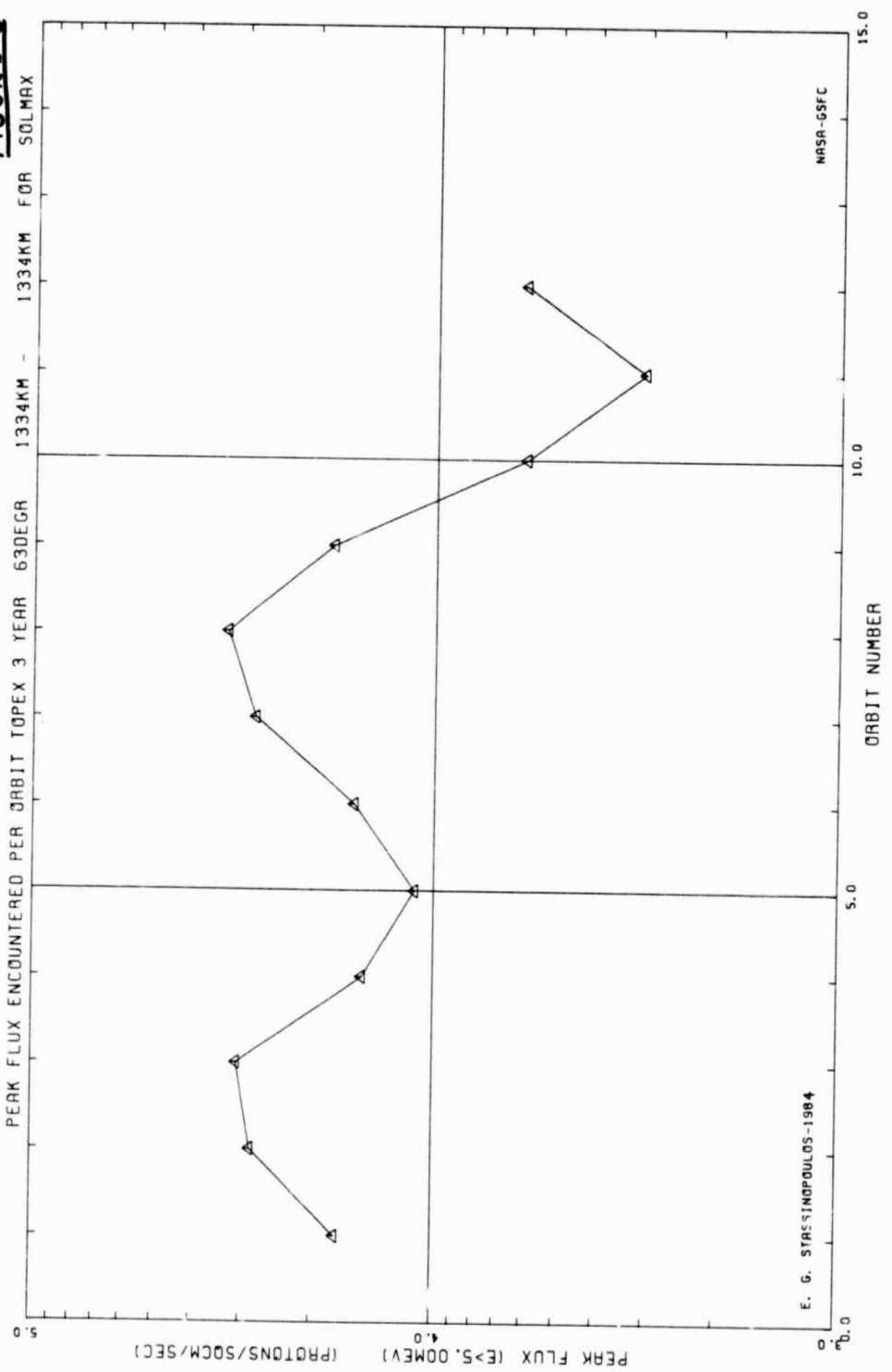
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FIGURE 2



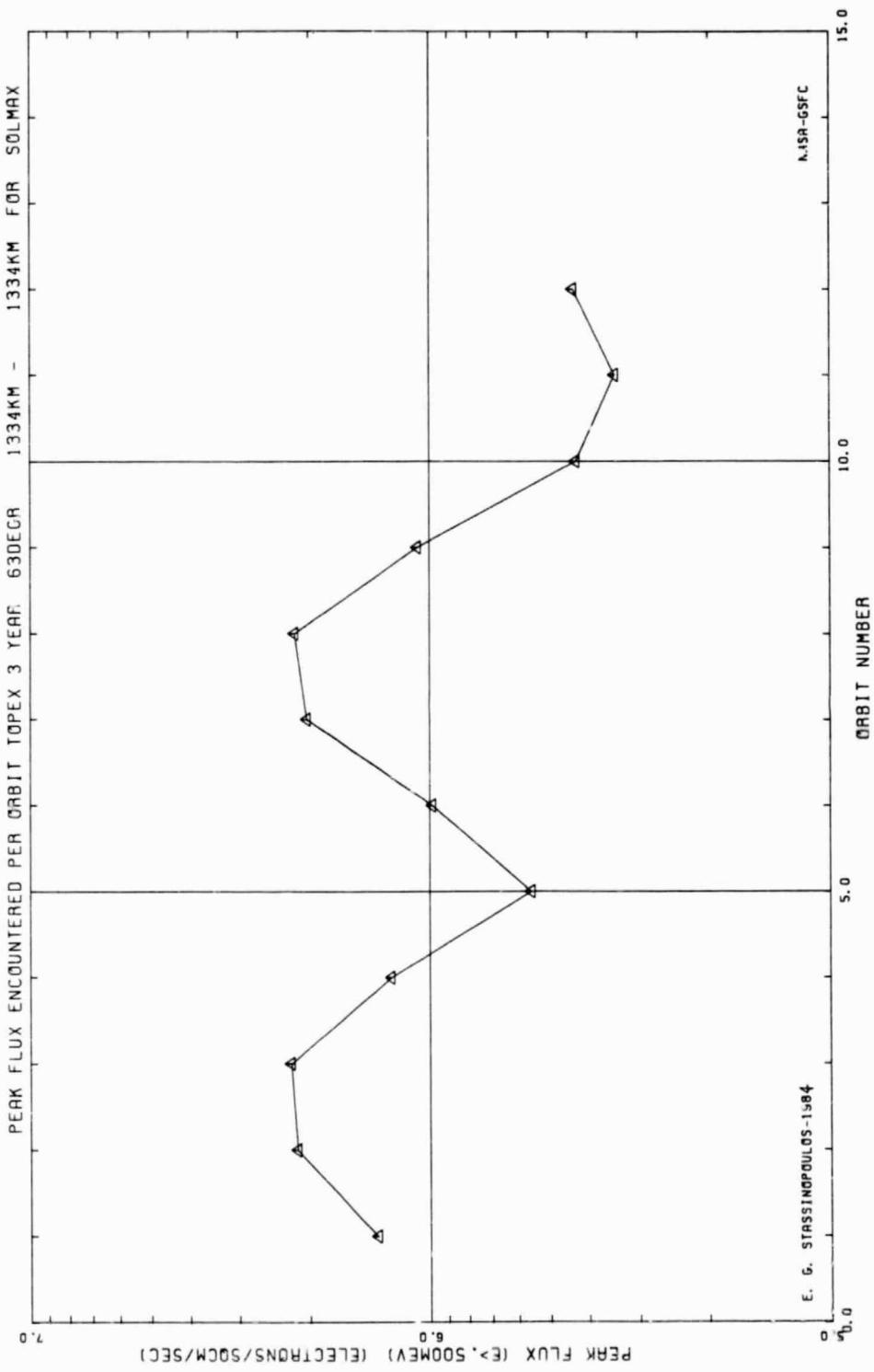
ORIGINAL PAGE IS  
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**FIGURE 3**

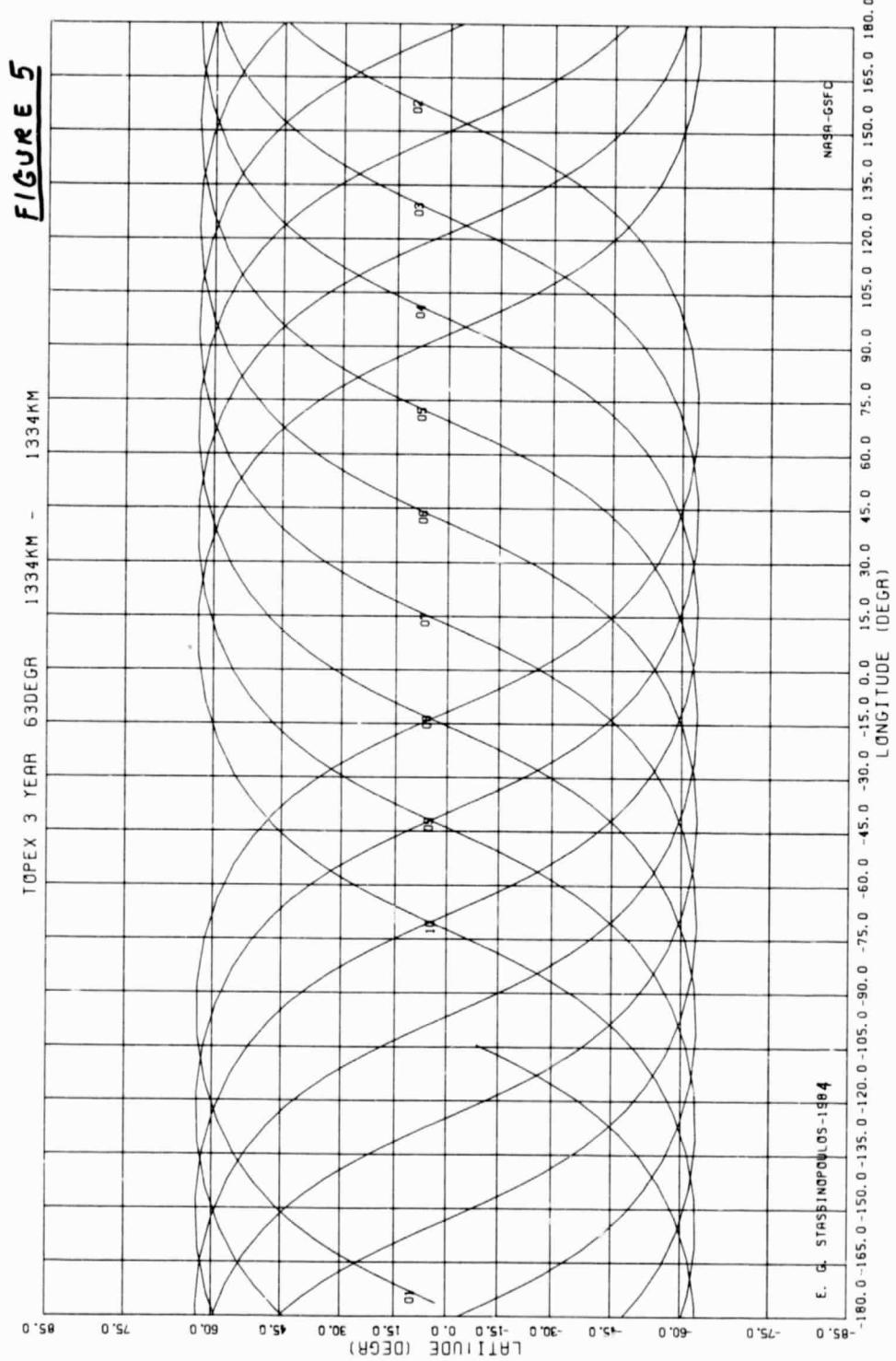


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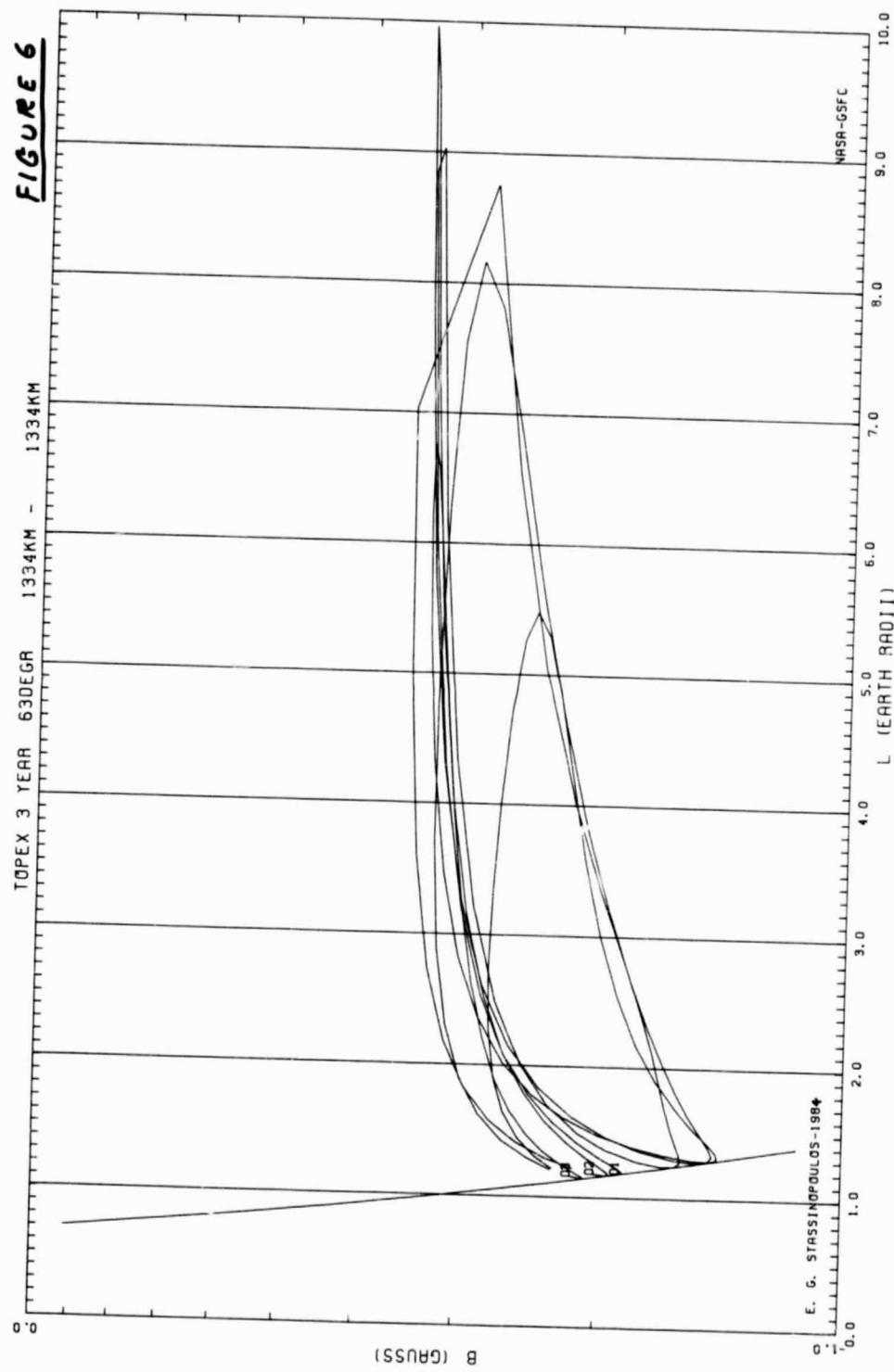
FIGURE 4



ORIGINAL PAGE IS  
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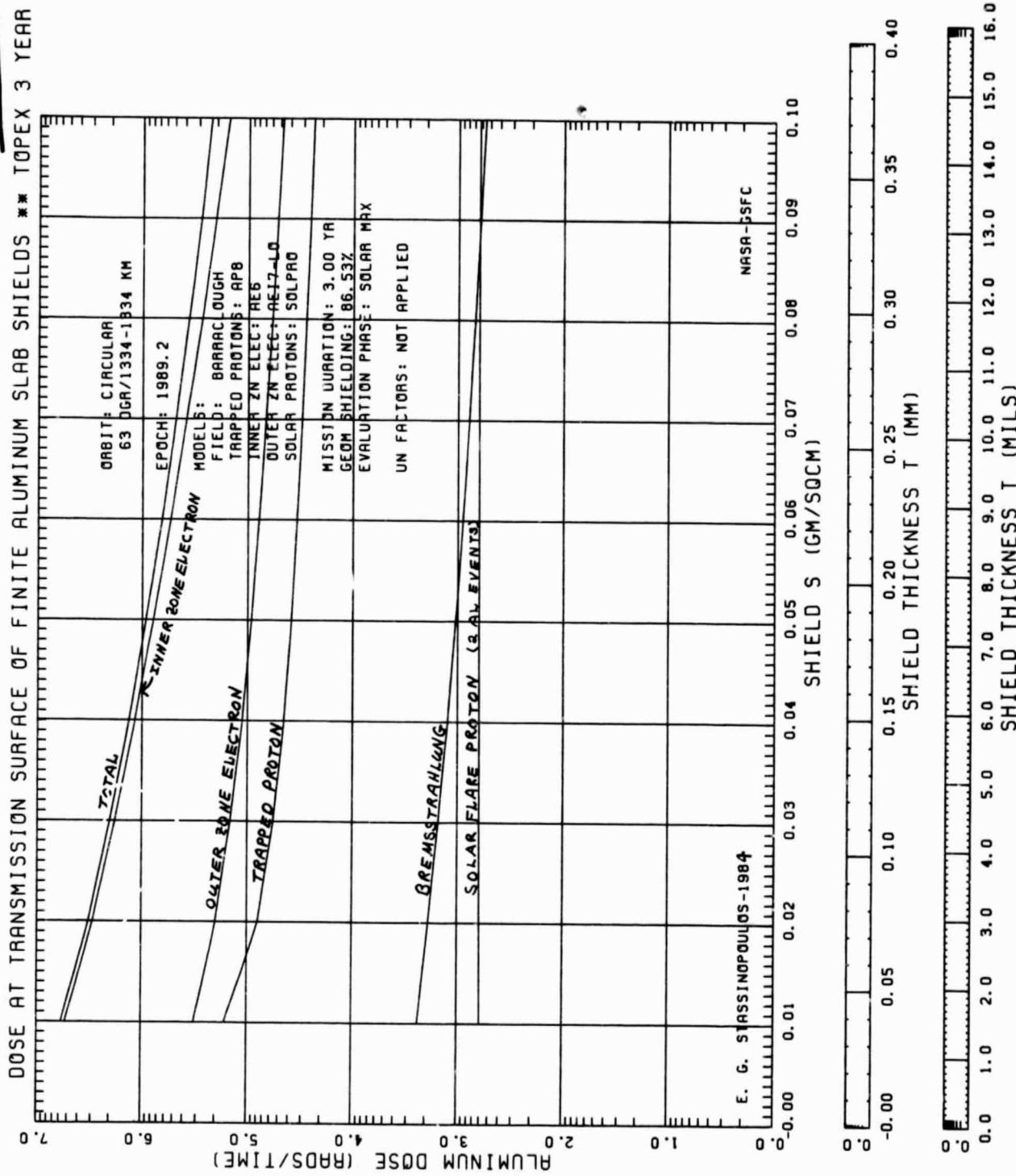


ORIGINAL PAGE IS  
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## FIGURE 7

ORIGINAL PAGE IS  
OF POOR QUALITY



ORIGINAL PAGE IS  
OF POOR QUALITY

FIGURE 6

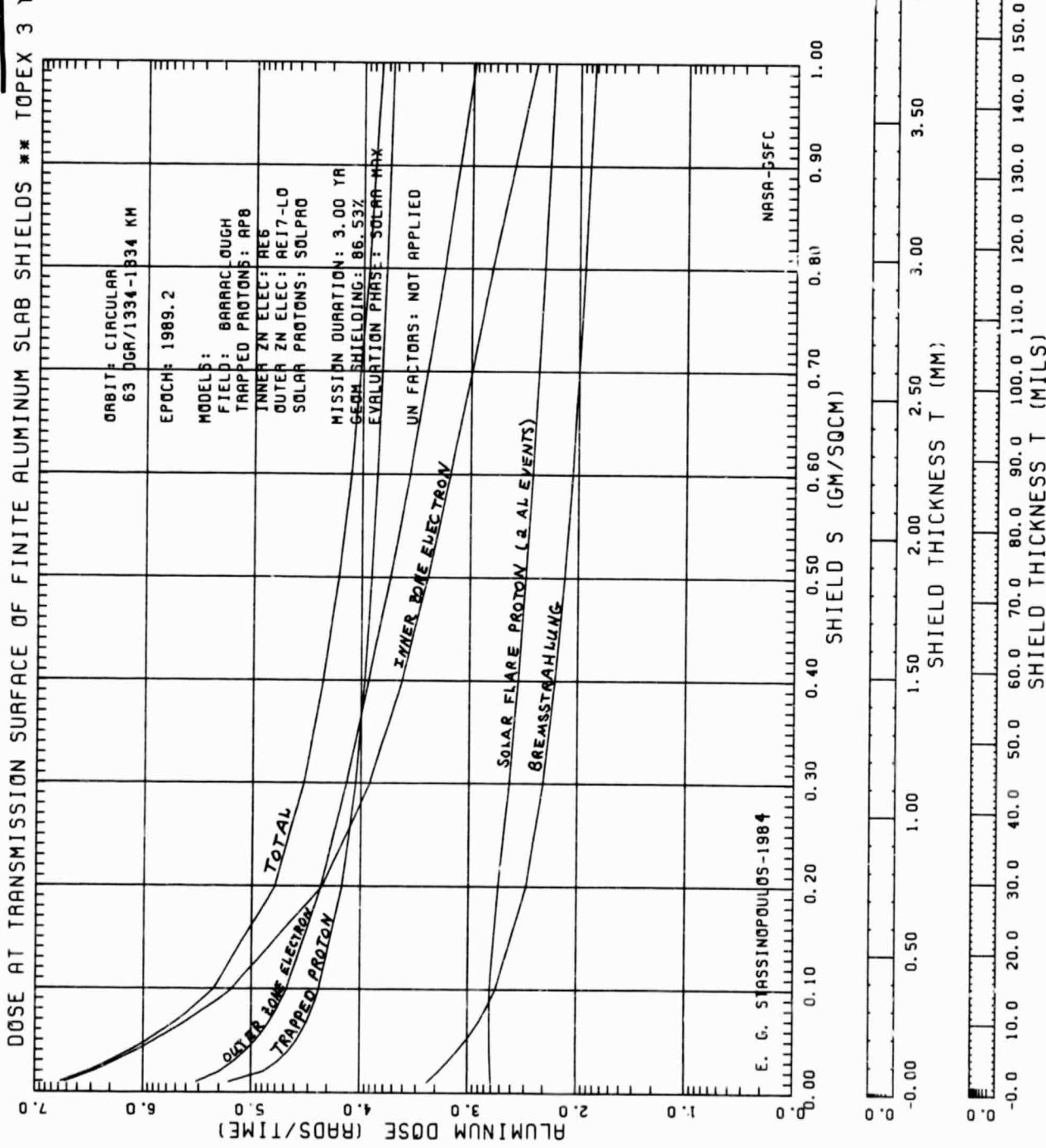
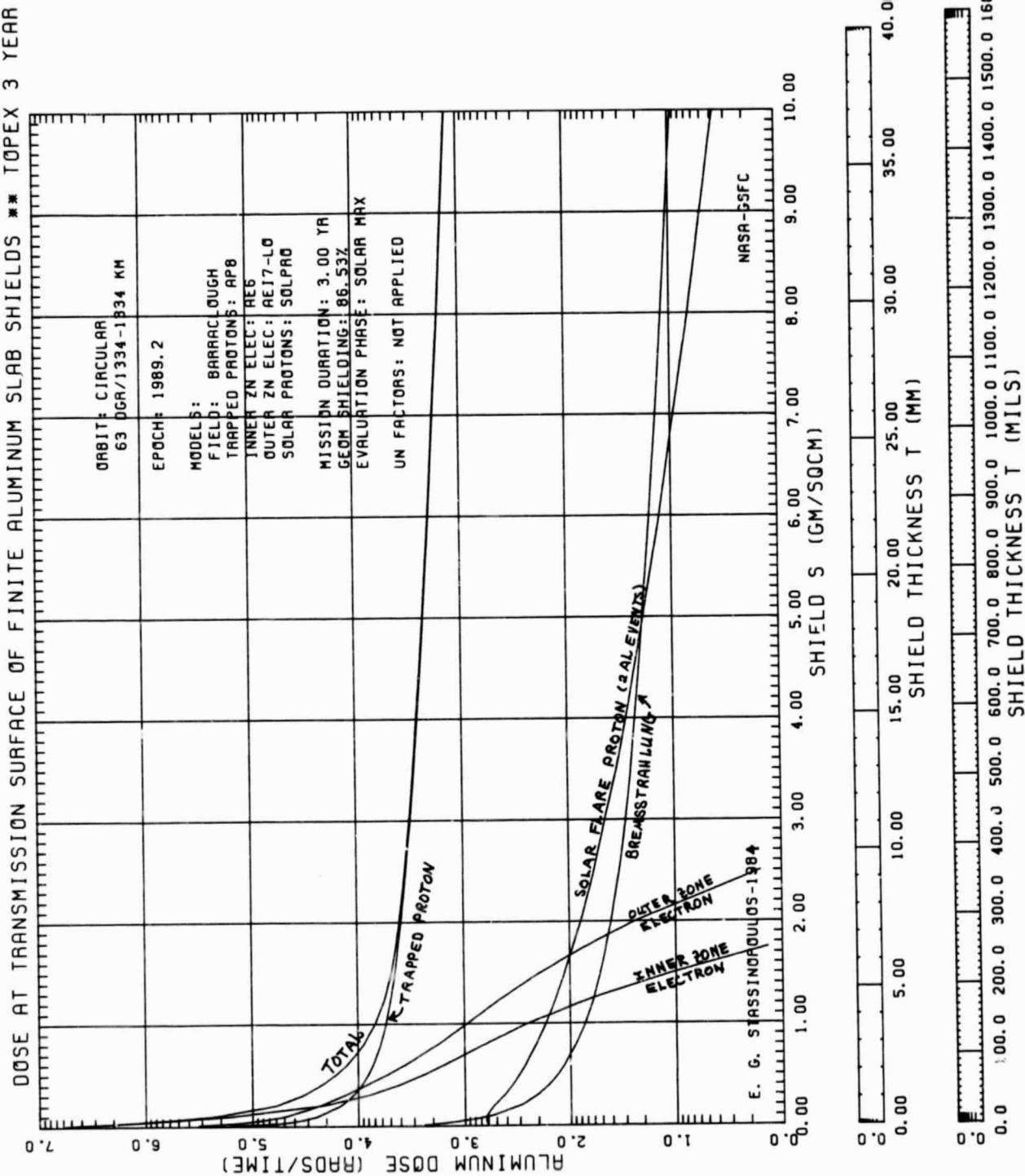


FIGURE 9

ORIGINAL PAGE IS  
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## FIGURE 10

ORIGINAL PAGE IS  
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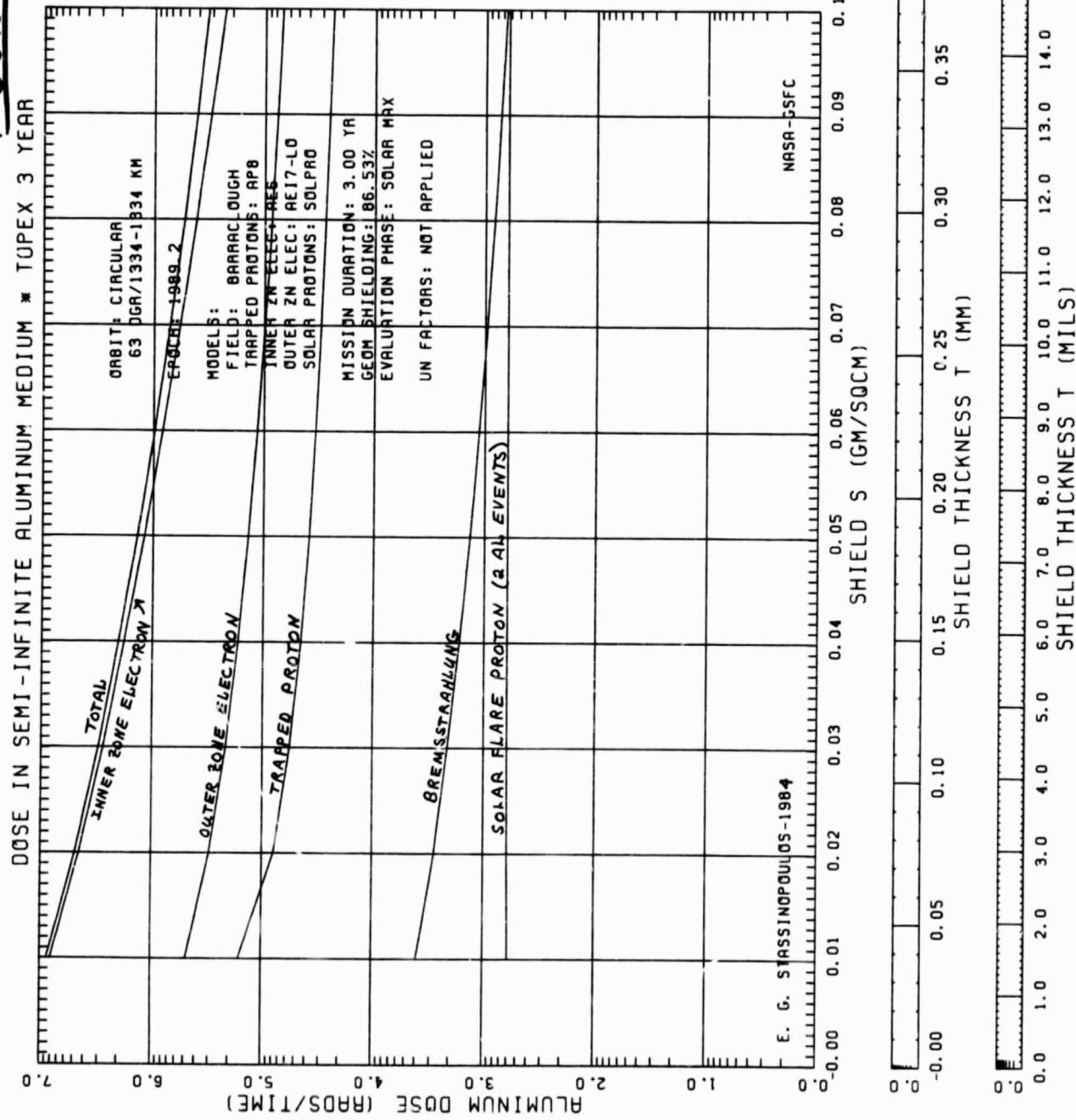
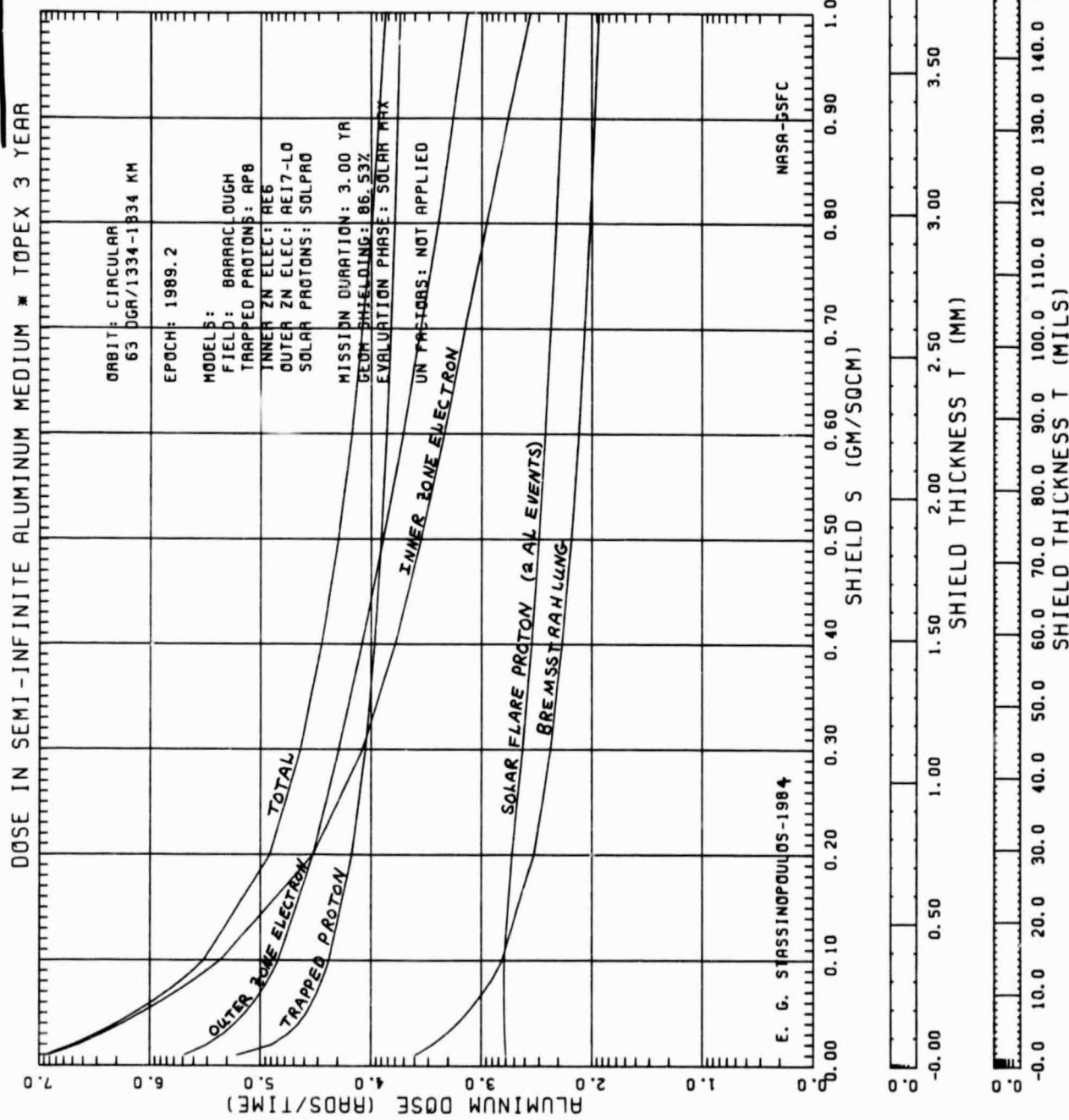


FIGURE E 14

ORIGINAL PAGE IS  
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**FIGURE 12**

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OF POOR QUALITY

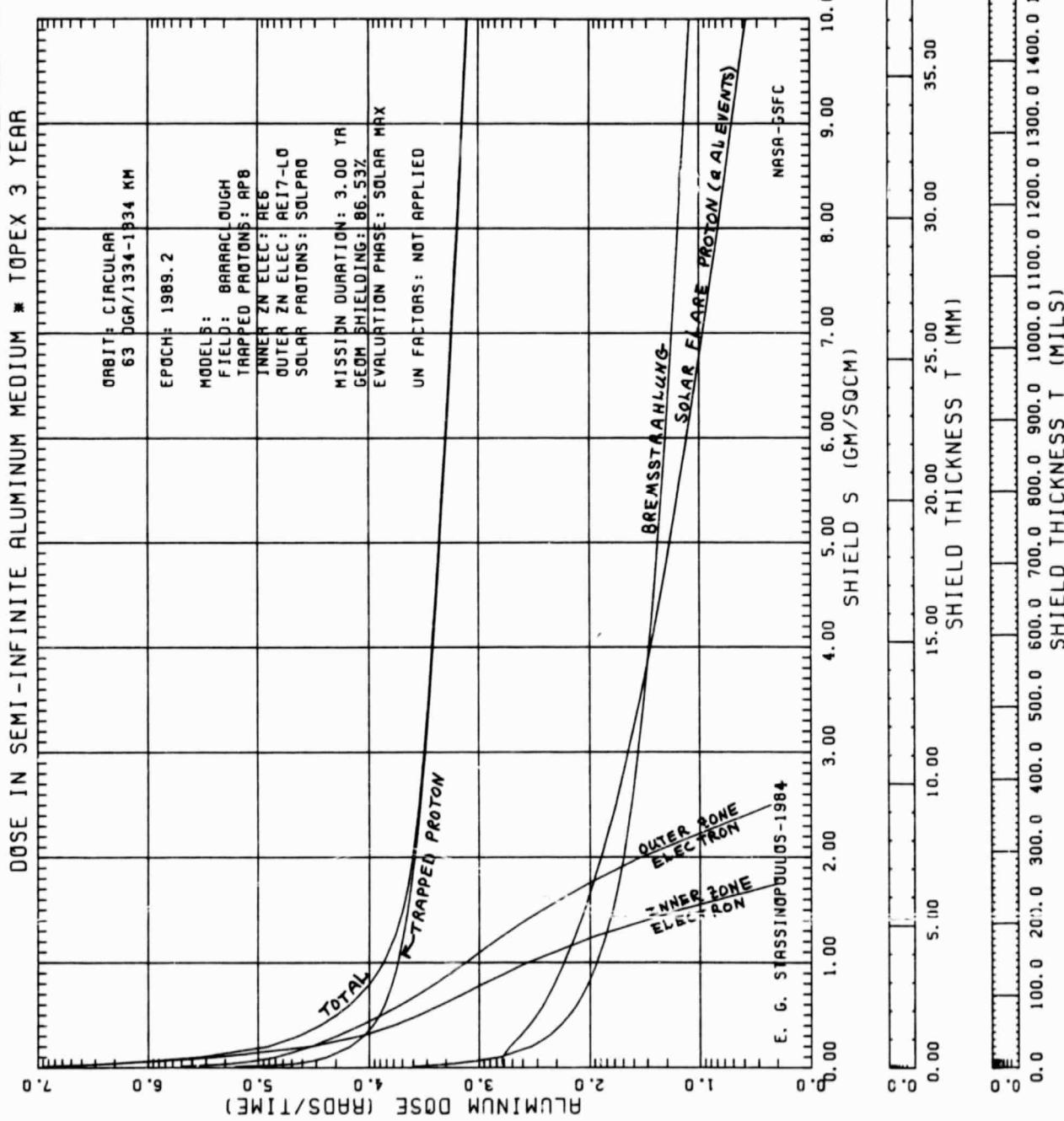
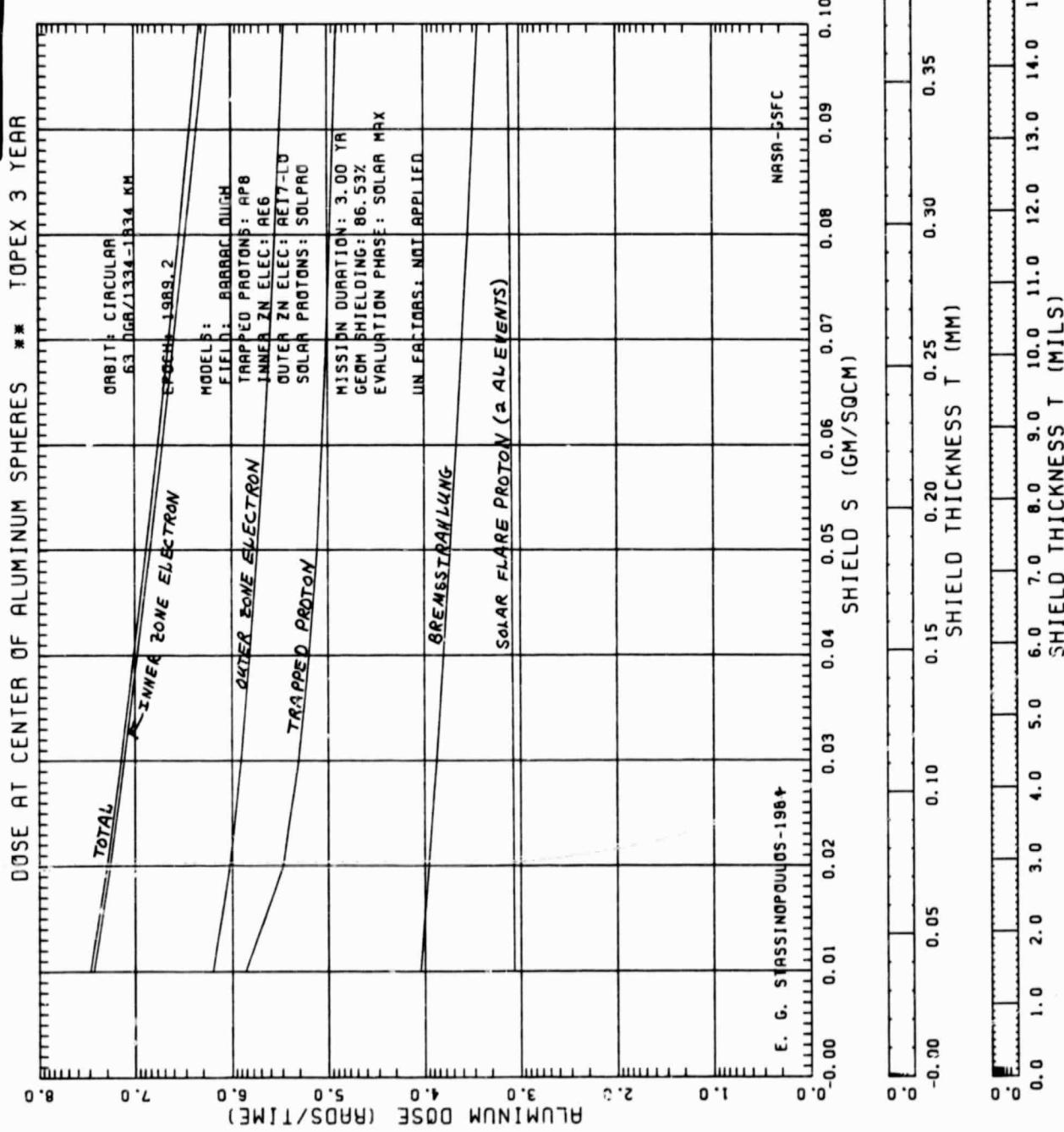


FIGURE 13



ORIGINAL PAGE IS  
OF POOR QUALITY

FIGURE 14

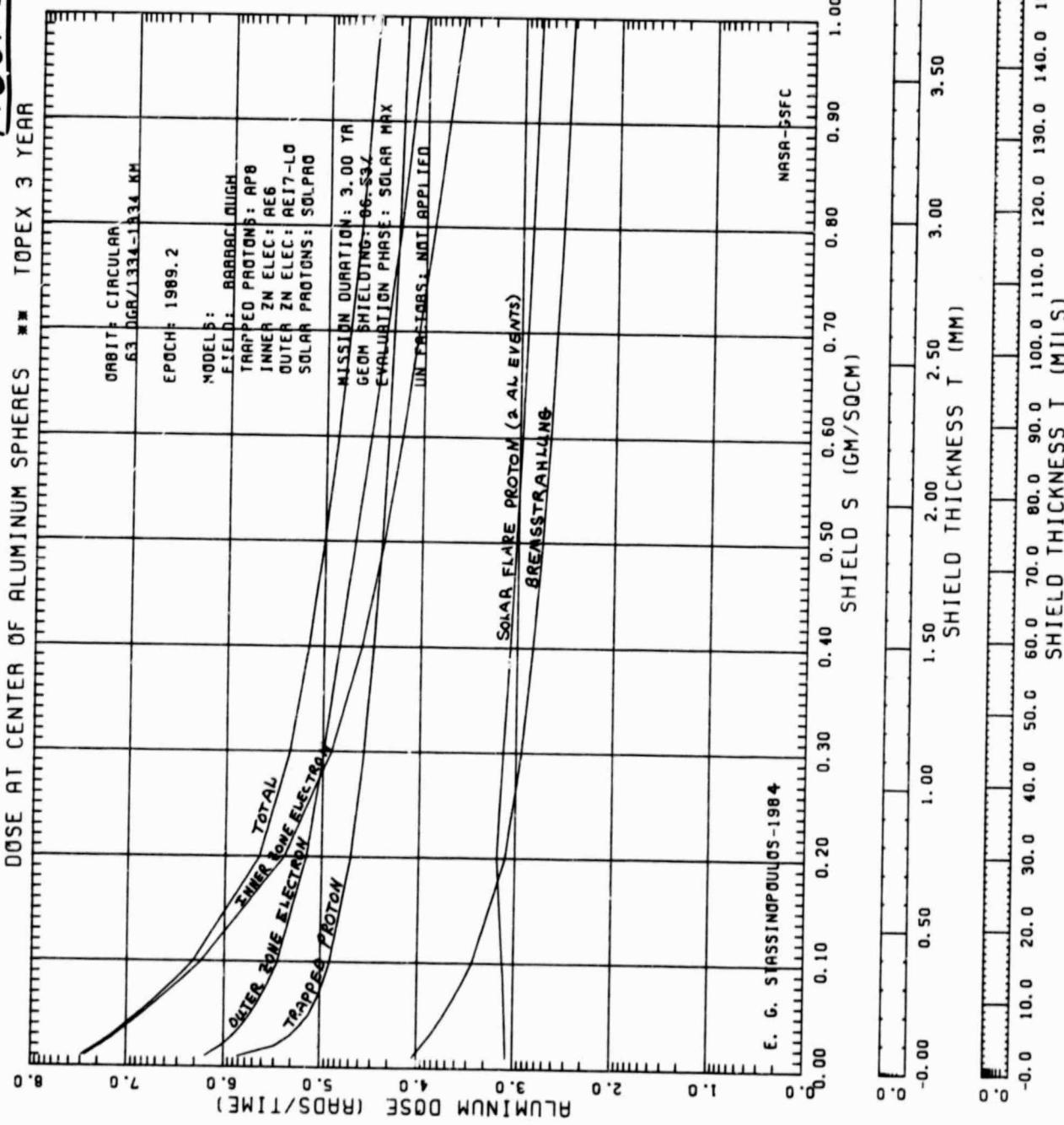
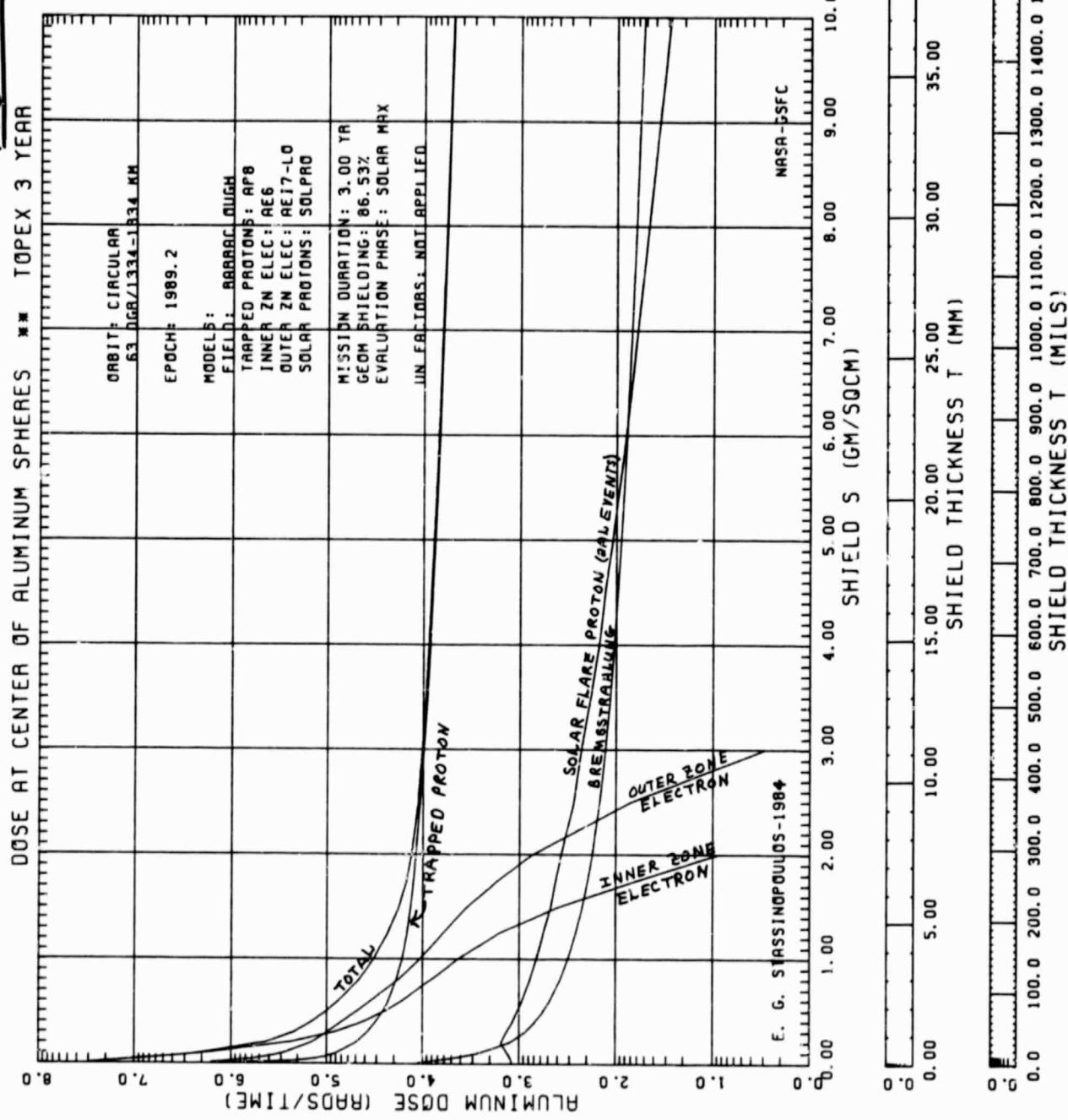
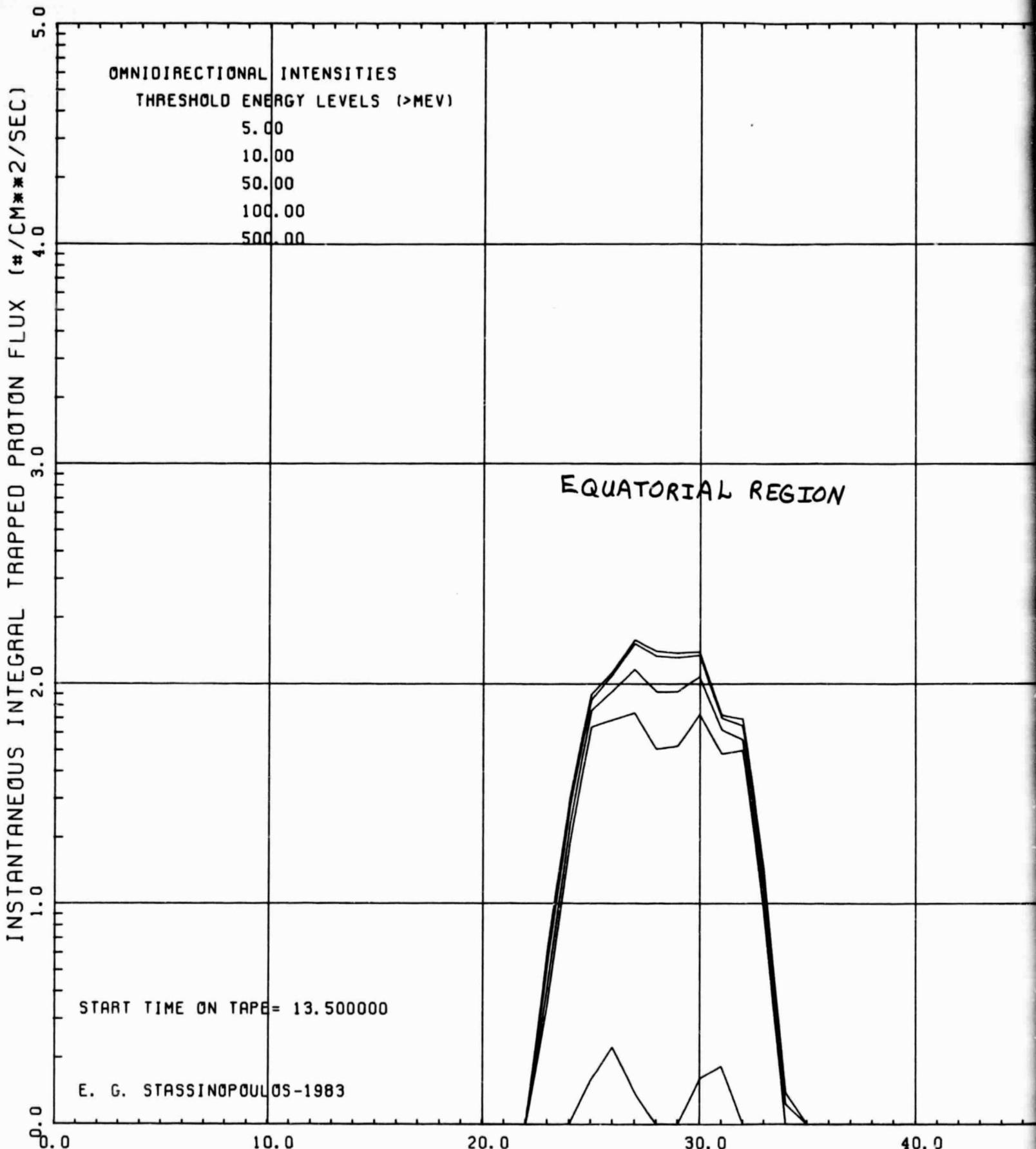


FIGURE 15

ORIGINAL PAGE IS  
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ORIGINAL PAGE IS  
OF POOR QUALITY



FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

SAA

2  
FOLDOUT FRAME

0 50.0 60.0 70.0 80.0 90.0  
RELATIVE ORBIT TIME (MINUTES)

# FIGURE 16

ORBIT: TOPEX/WORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: BARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: AEI7-L0

MISSION DURATION: 36.00 MO

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

ORIGINAL PAGE IS  
OF POOR QUALITY

STOP TIME ON TAPE= 15.599999

NASA-GSFC

90.0

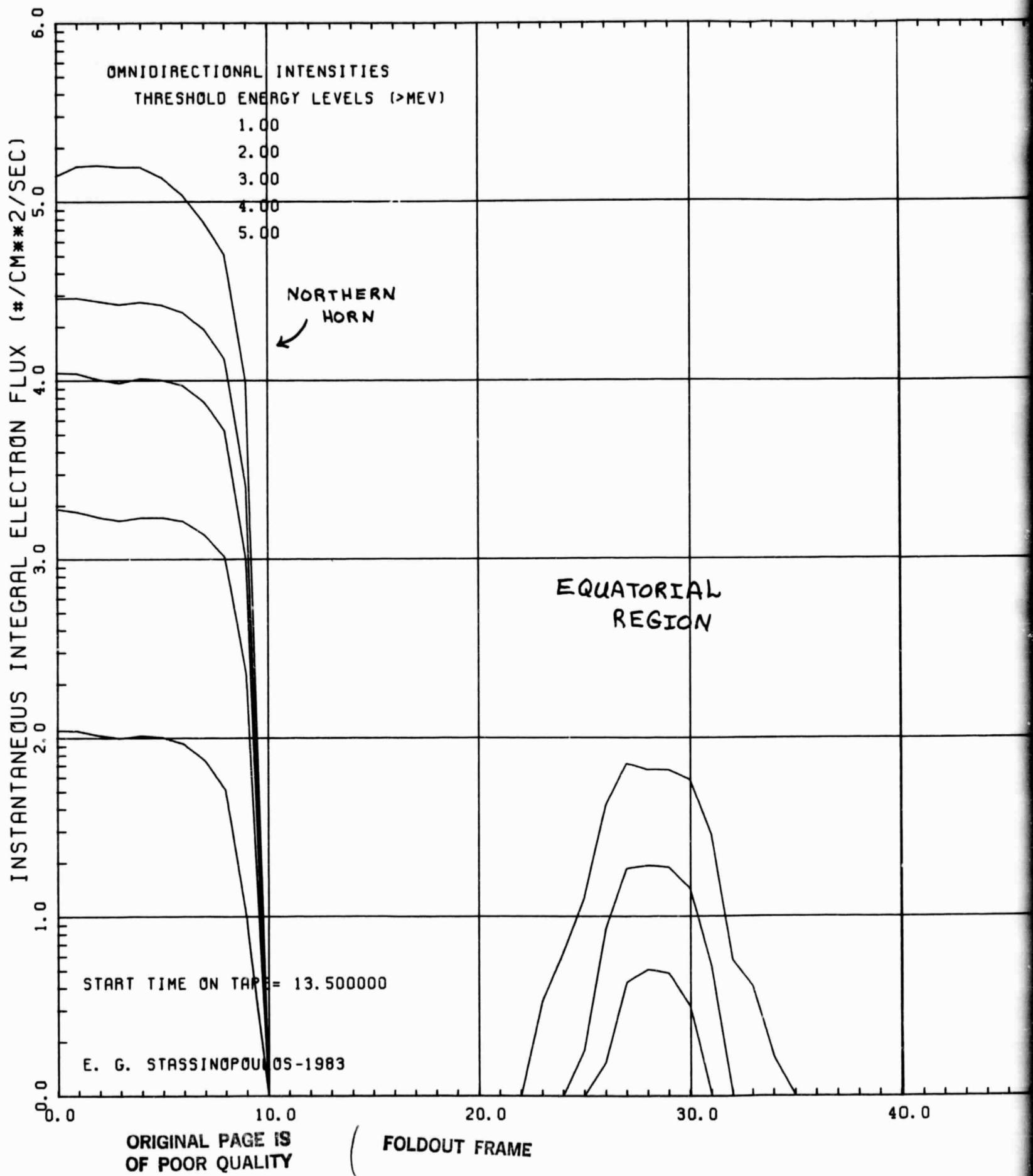
100.0

110.0

120.0

130.0

3 FOLDOUT FRAME



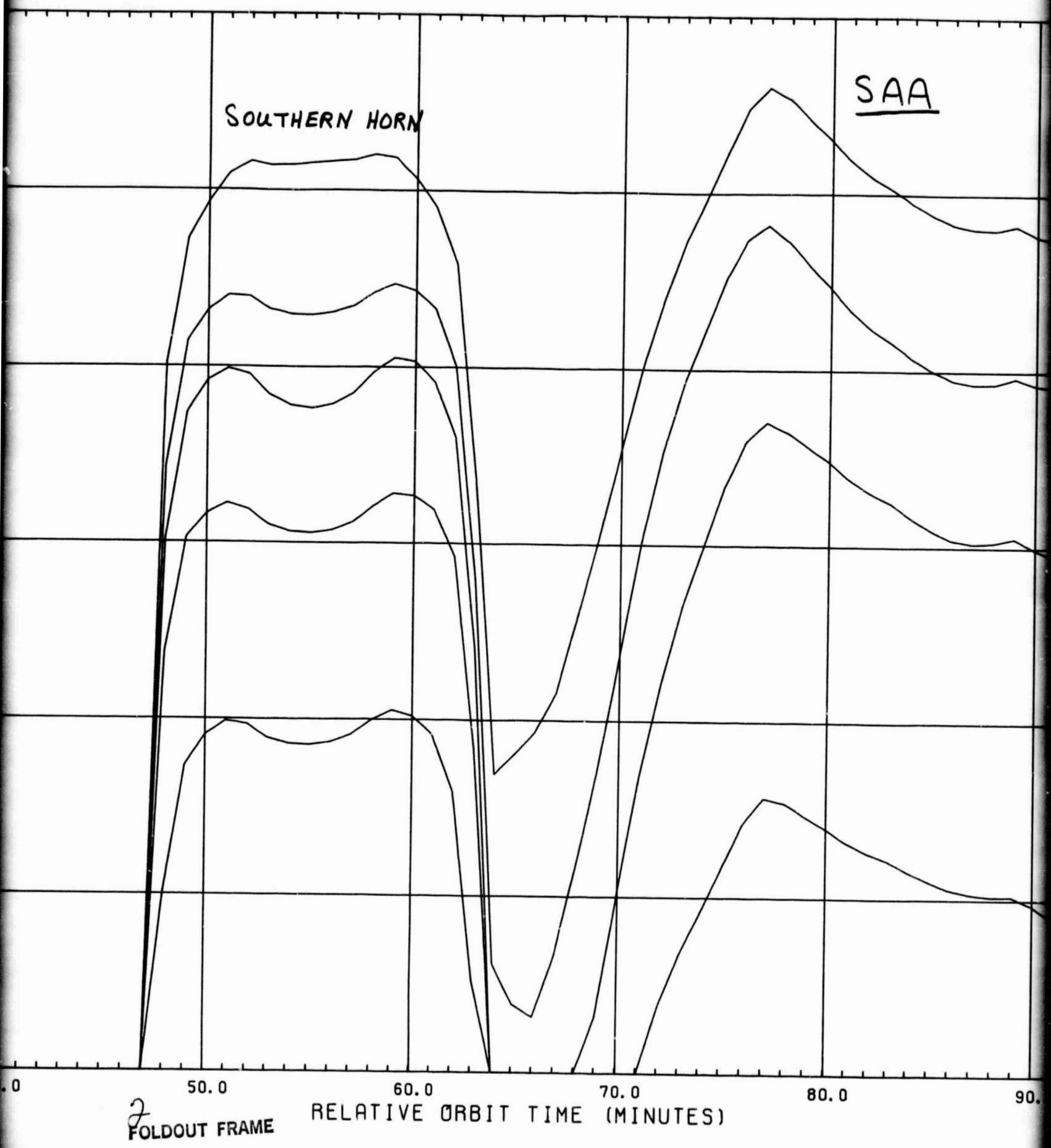
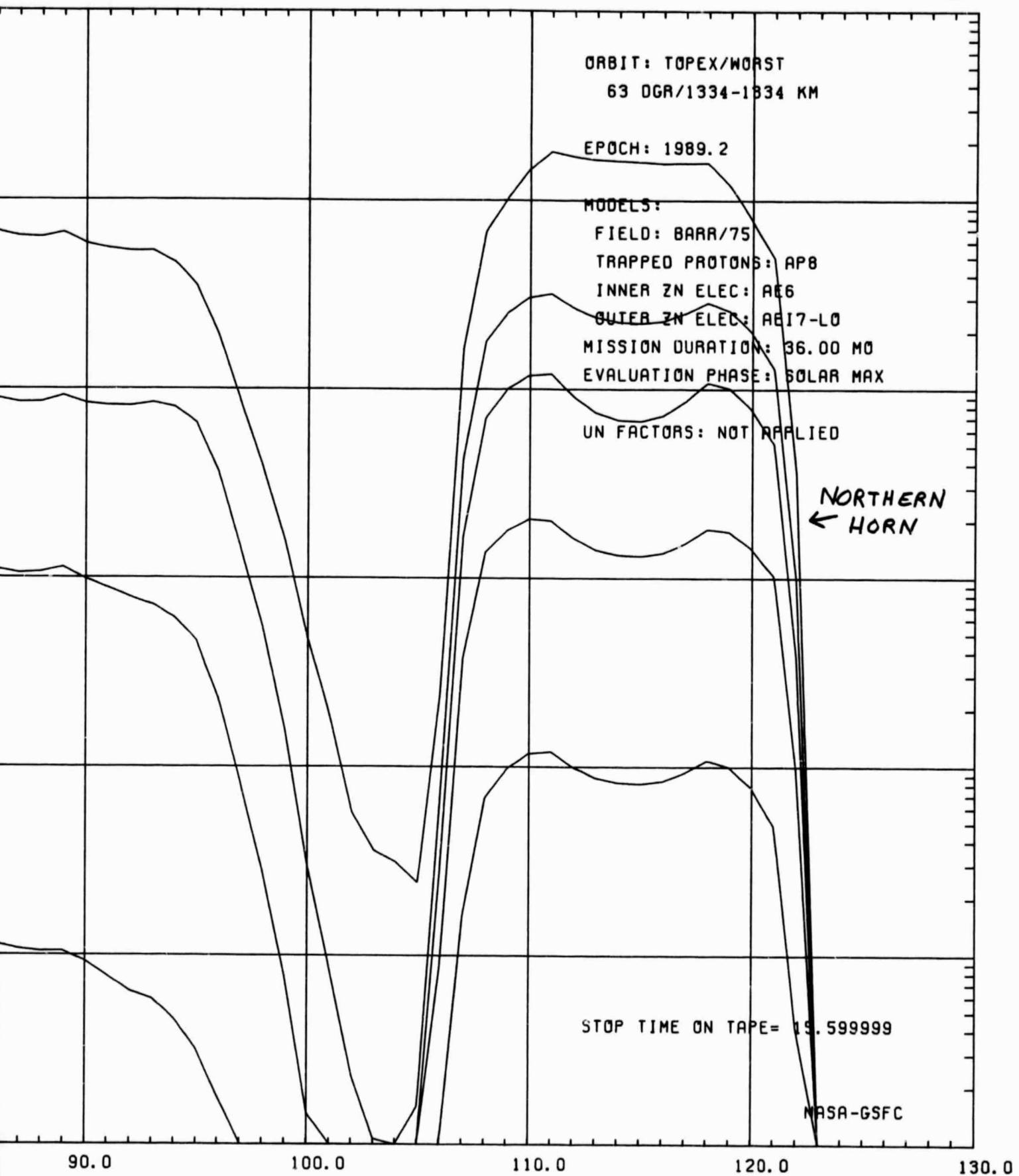
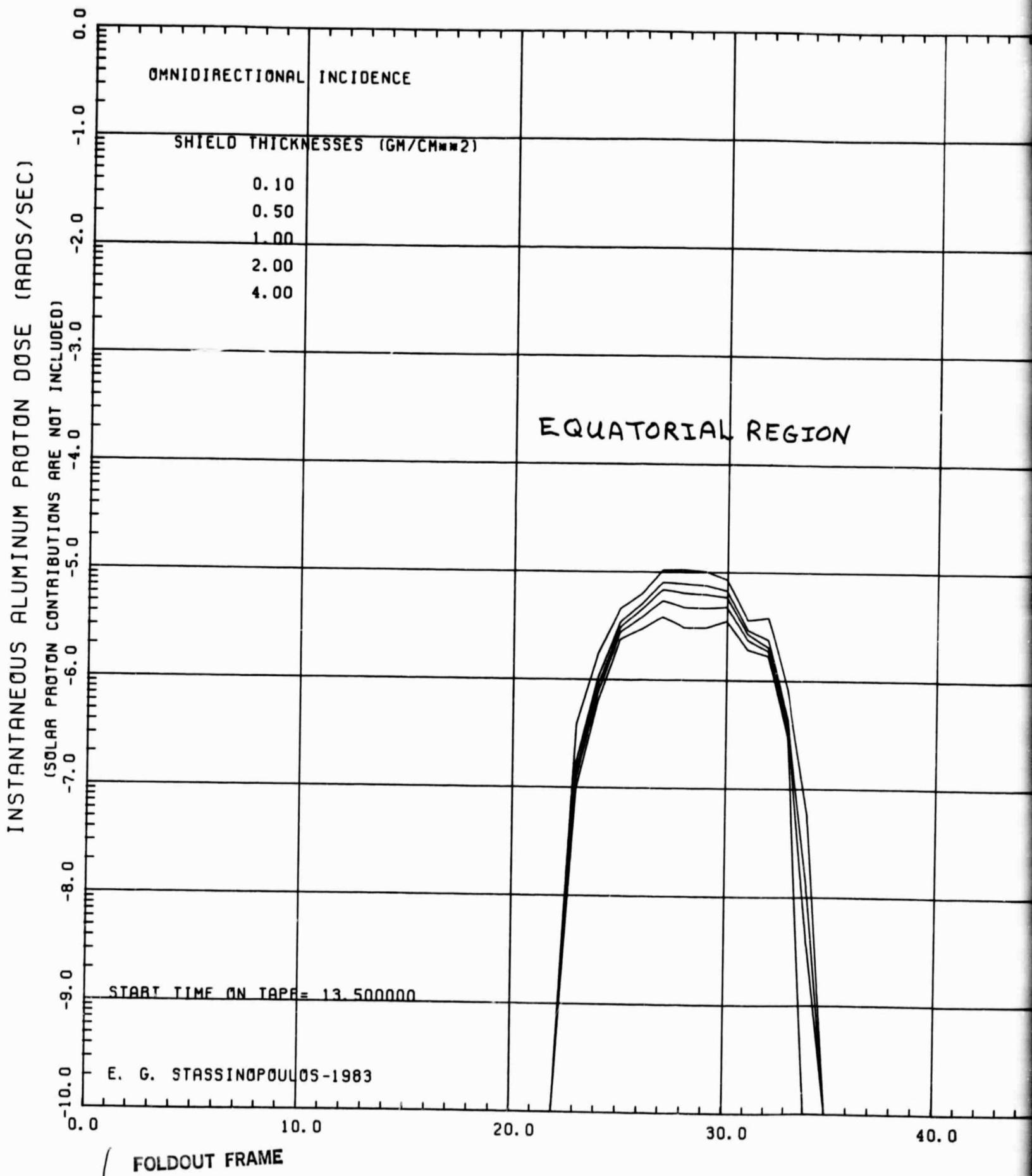


FIGURE 17



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DOSE AT TRANSMISSION SURFACE OF FINITE ALUMINUM SLAB SHIELDS

SAA

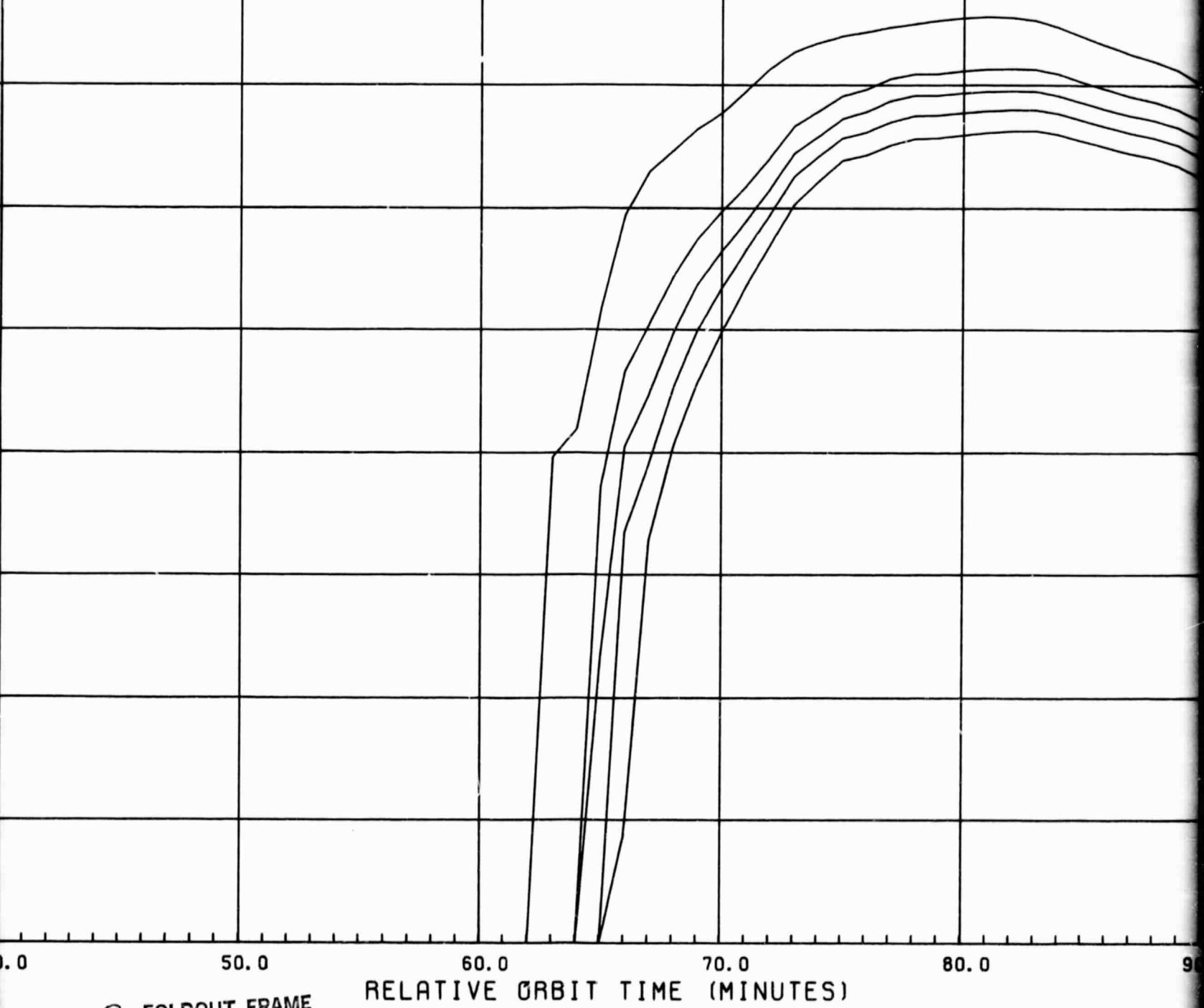


FIGURE-18

HIELDS

ORBIT: TOPEX/WORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIFIN: BARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: AEI7-LO

MISSION DURATION: 36.00 MO

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

STOP TIME ON TAPE= 15.599999

NASA-GSFC

90.0

100.0

110.0

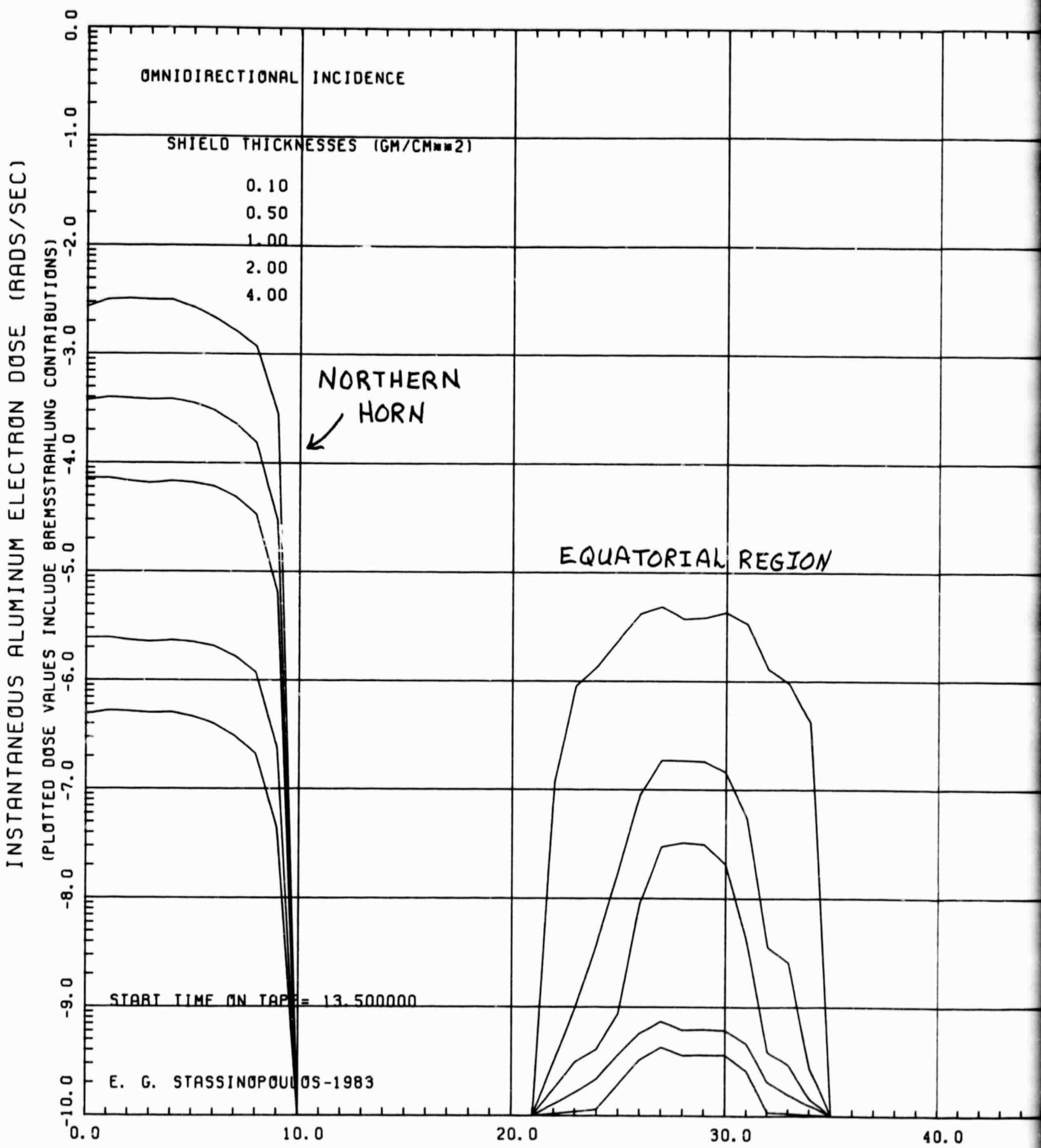
120.0

130.0

3  
FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY



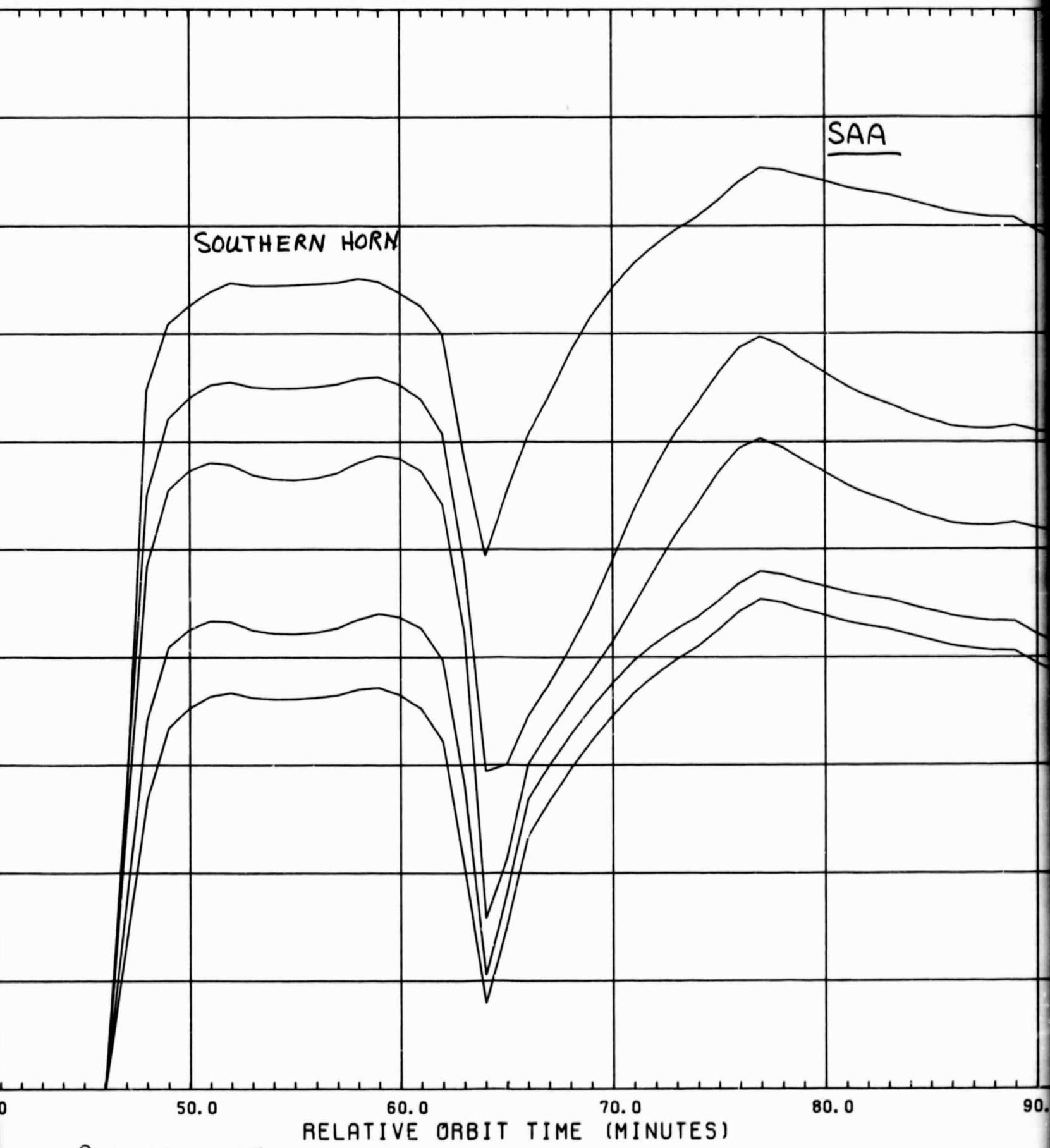
FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

DOSE AT TRANSMISSION SURFACE OF FINITE ALUMINUM SLAB SHIELDS

SAA

SOUTHERN HORN



ORIGINAL PAGE IS  
OF POOR QUALITY

FIGURE 19

EELDS

ORBIT: TOPEX/MORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: BABA/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AEG

OUTER ZN ELEC: AEI7-L0

MISSION DURATION: 36.00 MD

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

NORTHERN  
← HORN

STOP TIME ON TAPE = 15.699999

NASA-GSFC

90.0

100.0

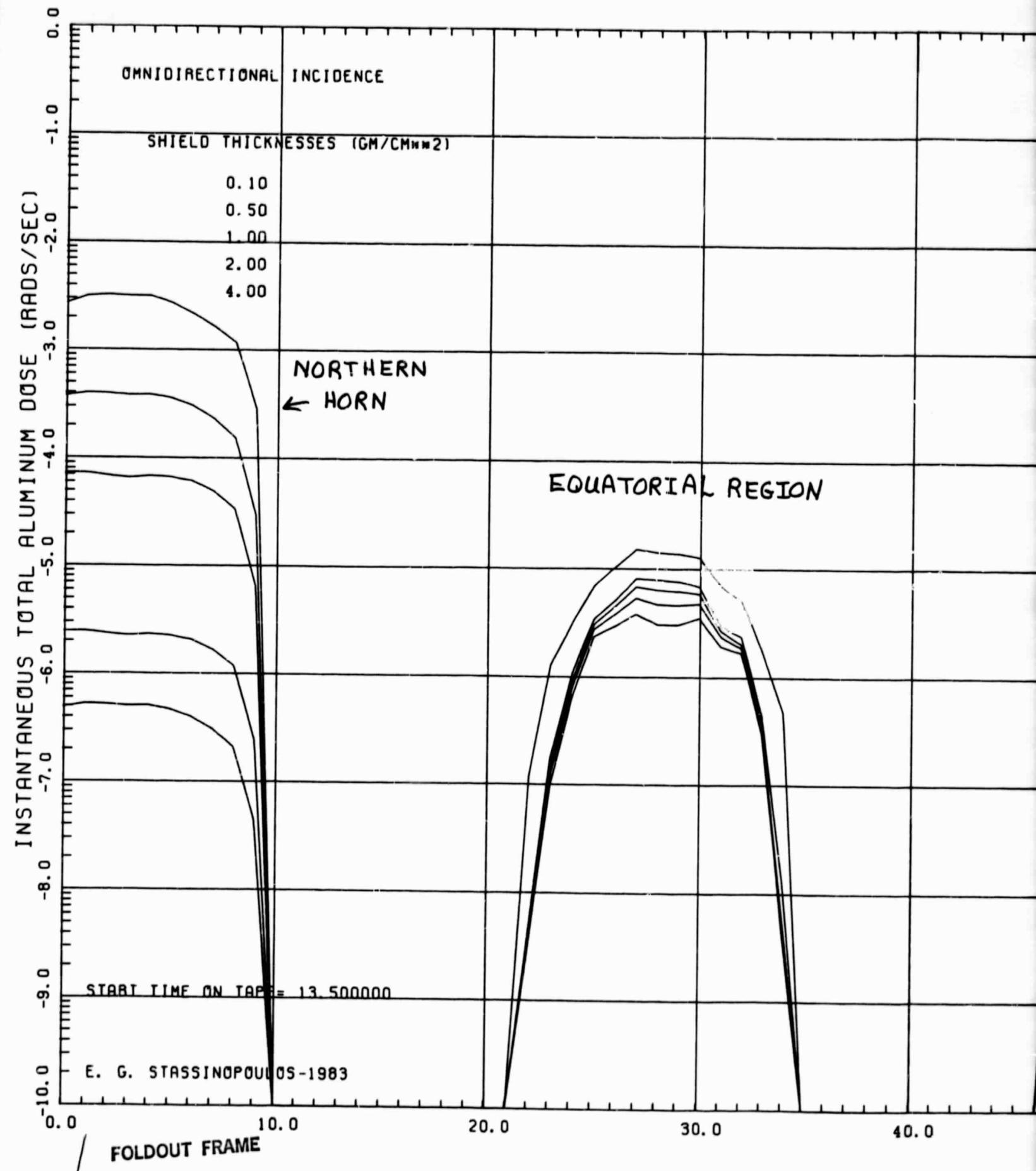
110.0

120.0

130.0

} FOLDOUT FRAME

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OF POOR QUALITY

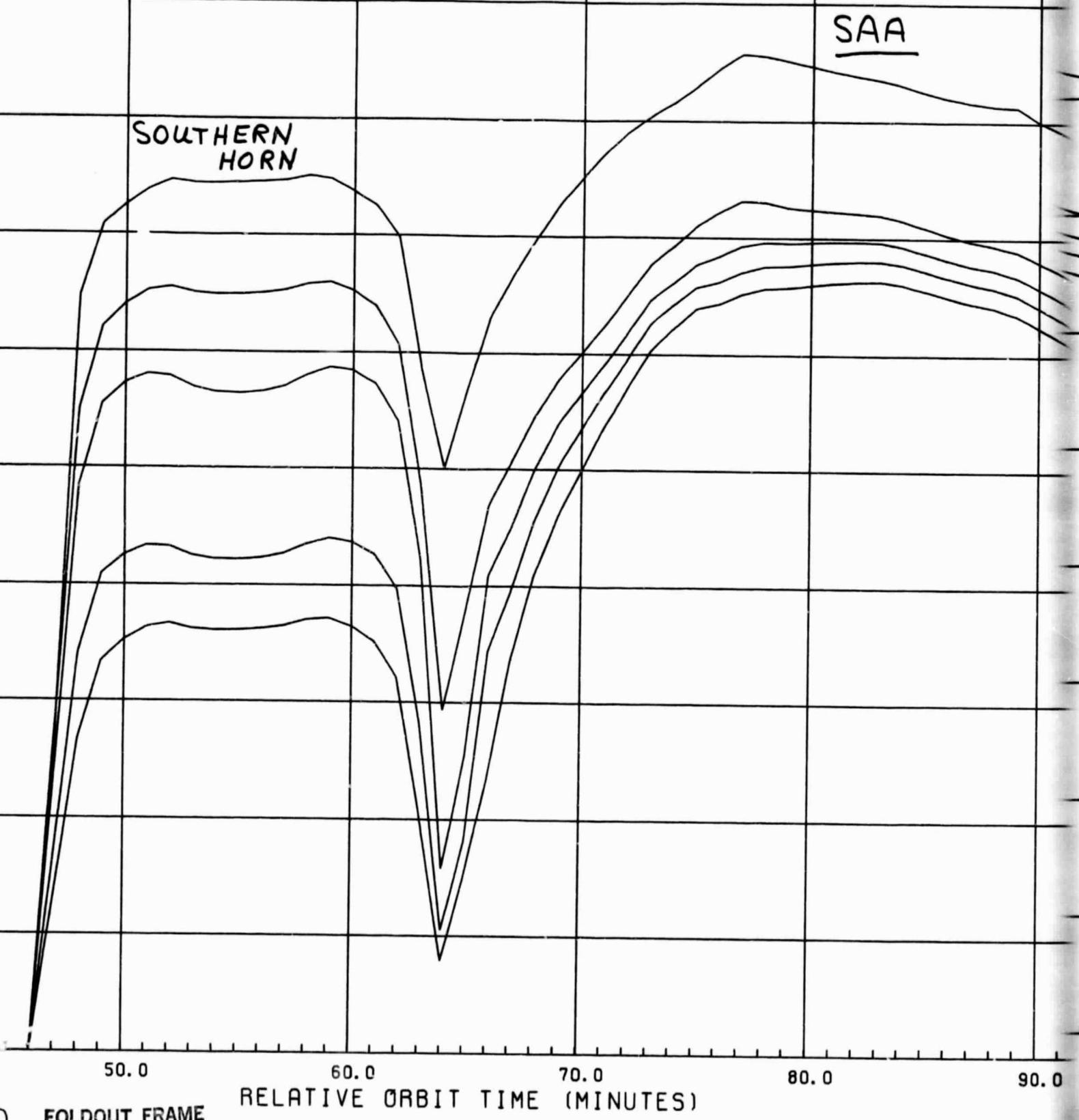


DOSE AT TRANSMISSION SURFACE OF FINITE ALUMINUM SLAB SHIELDS

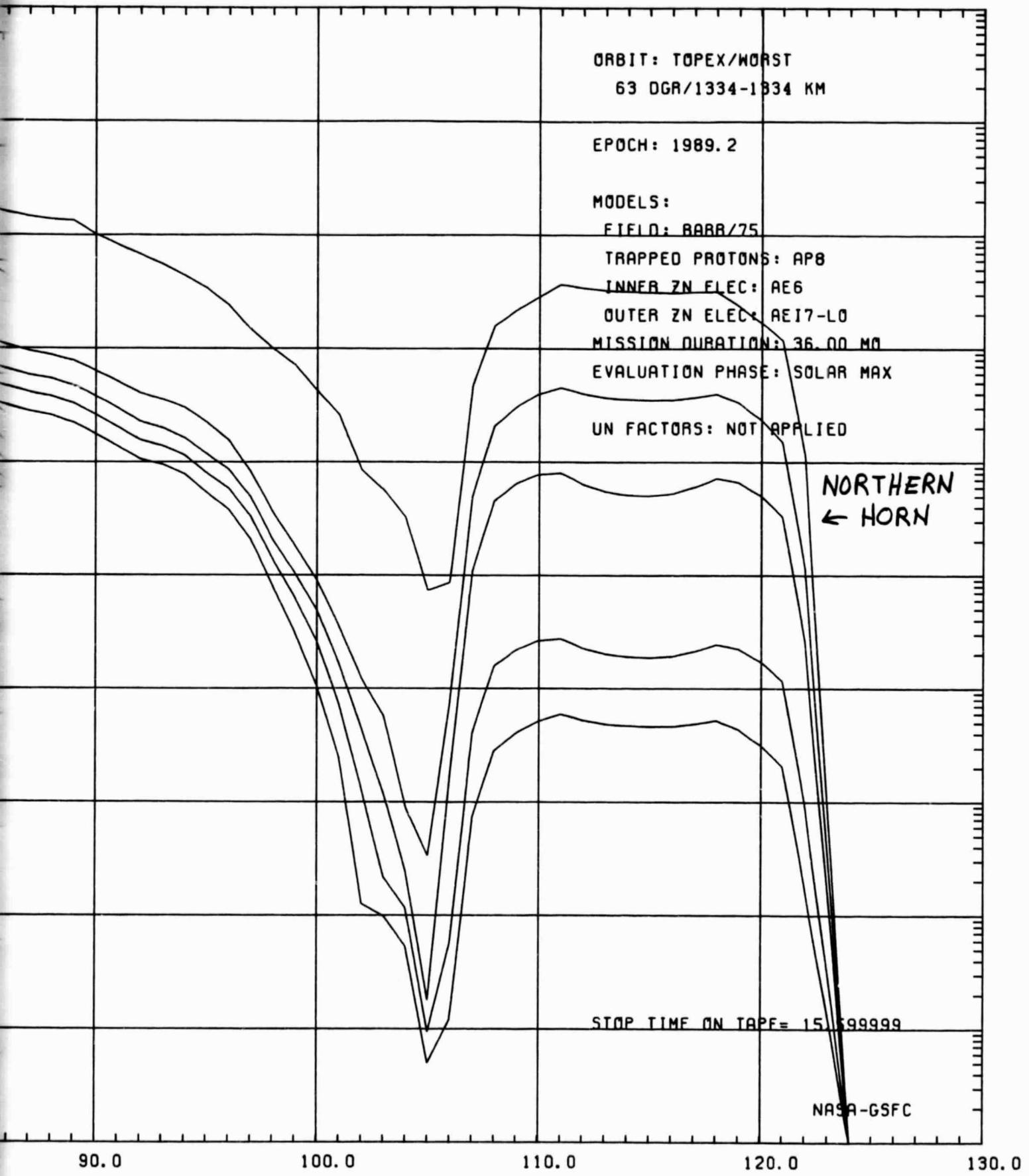
ORIGINAL PAGE IS  
OF POOR QUALITY

SAA

SOUTHERN  
HORN

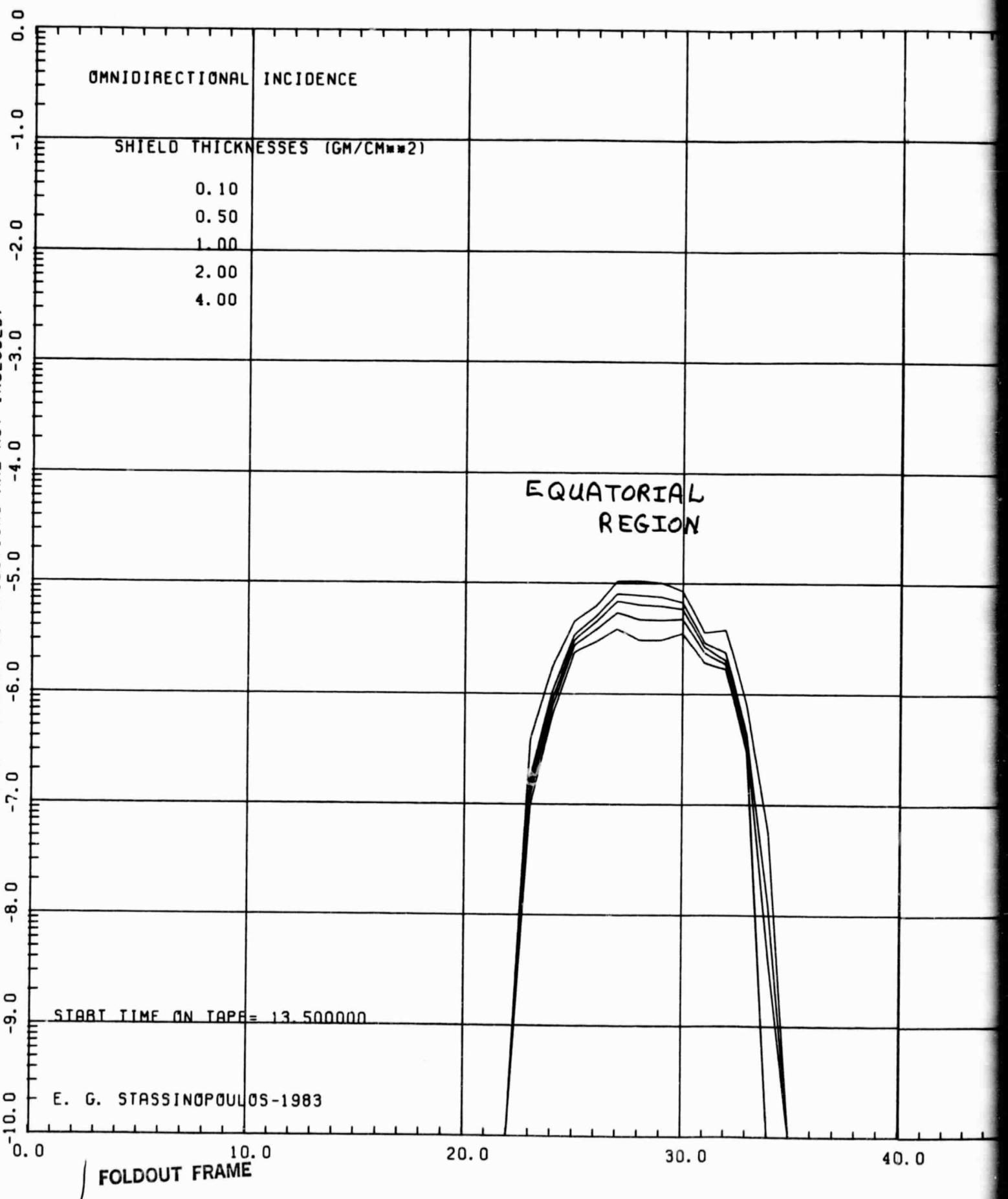


IELDS



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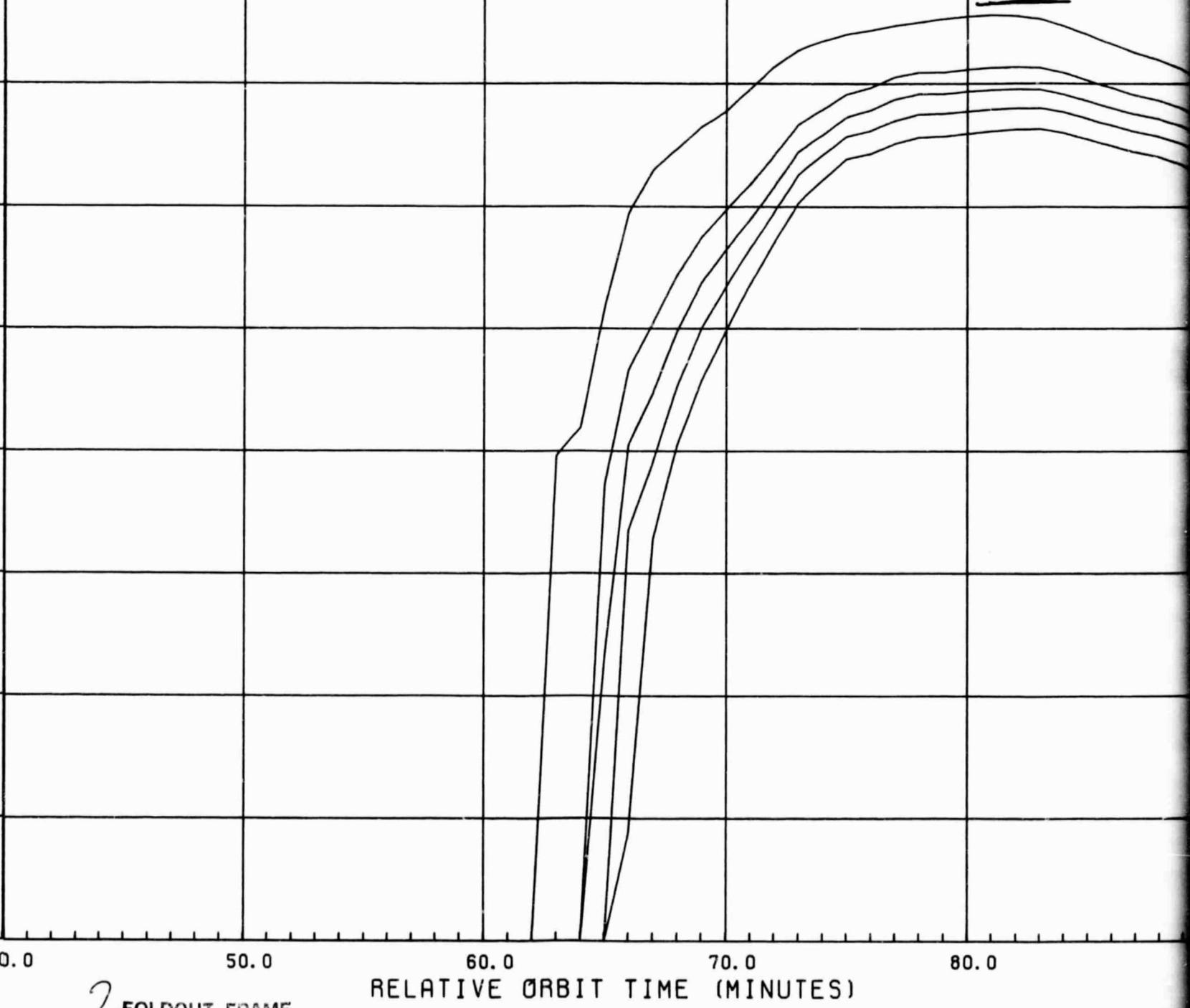
INSTANTANEOUS ALUMINUM PROTON DOSE (RAD/S/SEC)



DOSE IN SEMI-INFINITE ALUMINUM MEDIUM

ORIGINAL PAGE IS  
OF POOR QUALITY

SAA



# FIGURE 21

ORBIT: TOPEX/WCRST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: BARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: AEI7-L0

MISSION DURATION: 36.00 MN

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

STOP TIME ON TAPF= 15.599999

NASA-GSFC

90.0

100.0

110.0

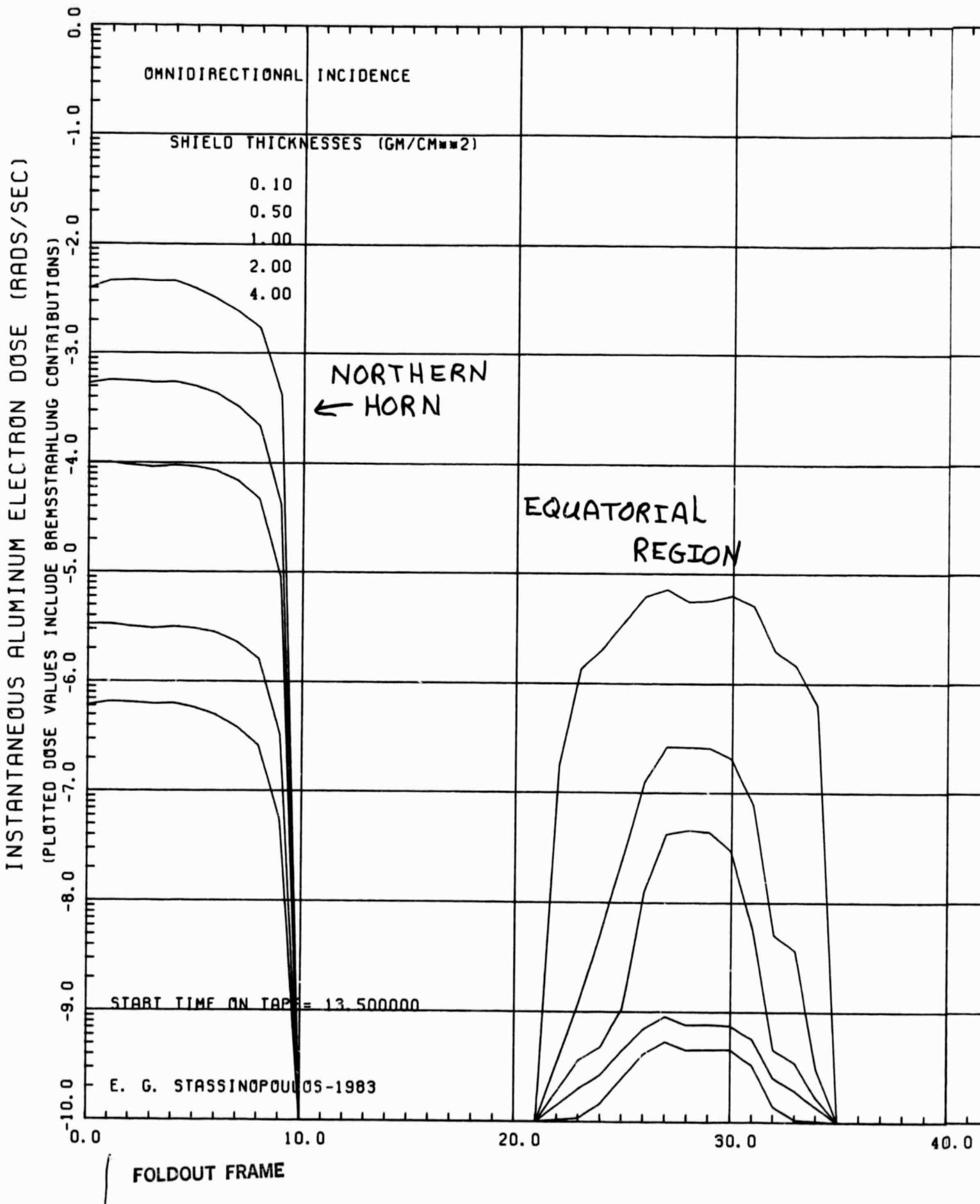
120.0

130.0

3 FOLDOUT FRAME

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OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY



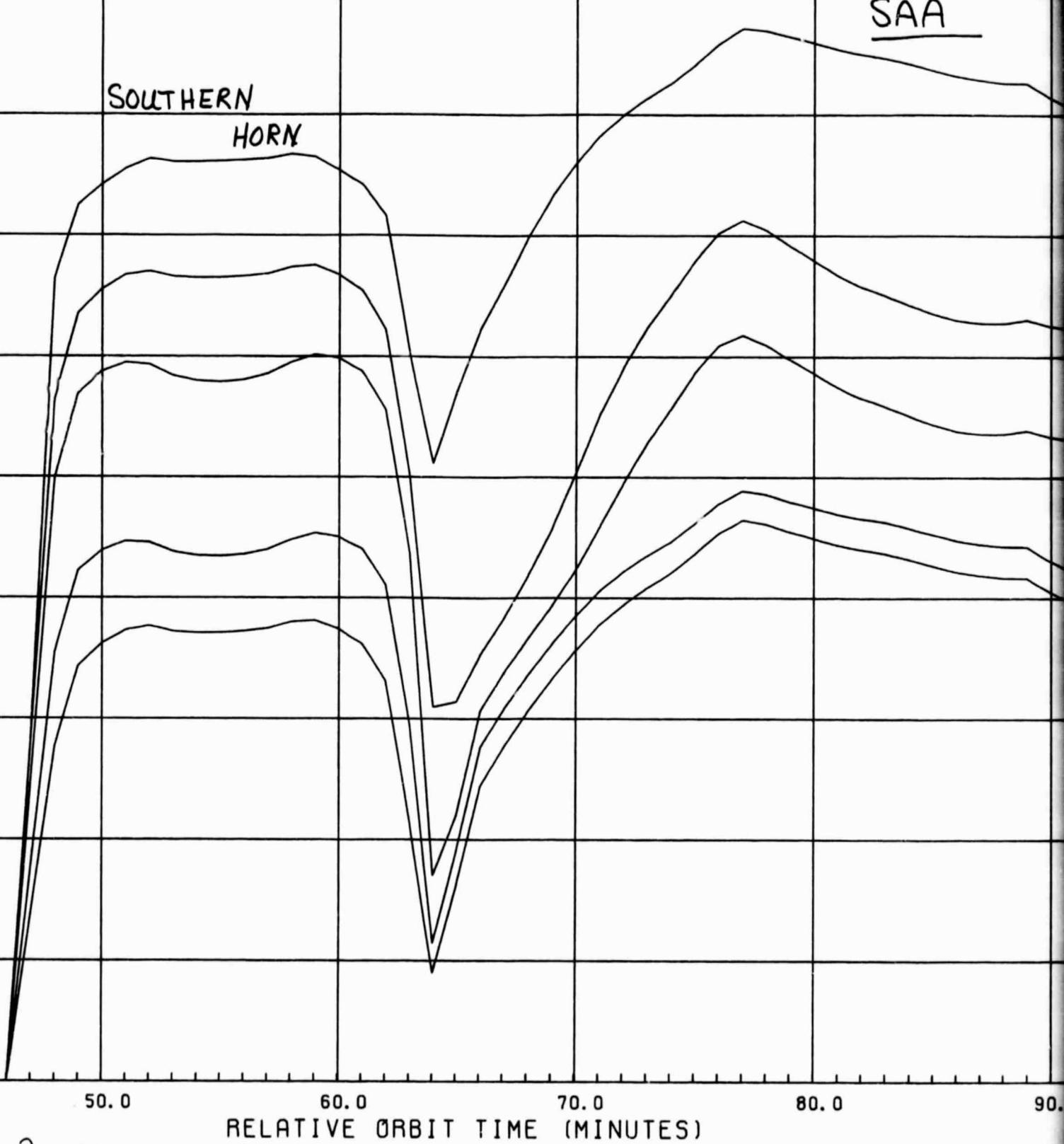
DOSE IN SEMI-INFINITE ALUMINUM MEDIUM

ORIGINAL PAGE IS  
OF POOR QUALITY

SAA

SOUTHERN

HORN



50.0

60.0

70.0

80.0

90.

RELATIVE ORBIT TIME (MINUTES)

2

FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

FIGURE 22

ORBIT: TOPEX/WORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: RARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: REI7-LO

MISSION DURATION: 36.00 MO

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

NORTHERN  
← HORN

STOP TIME ON TAPF= 15.699999

NASA-GSFC

90.0

100.0

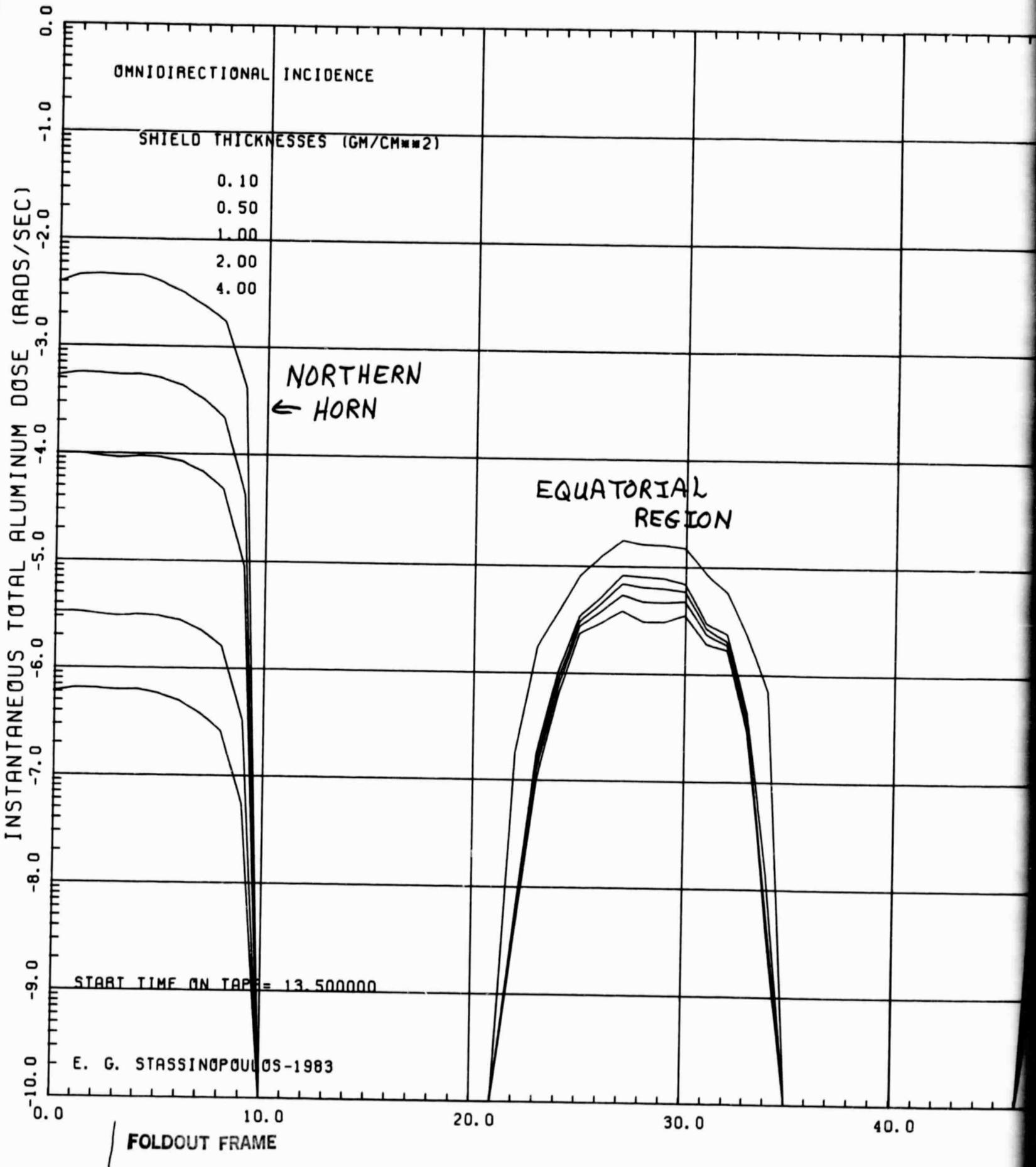
110.0

120.0

130.0

3 FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

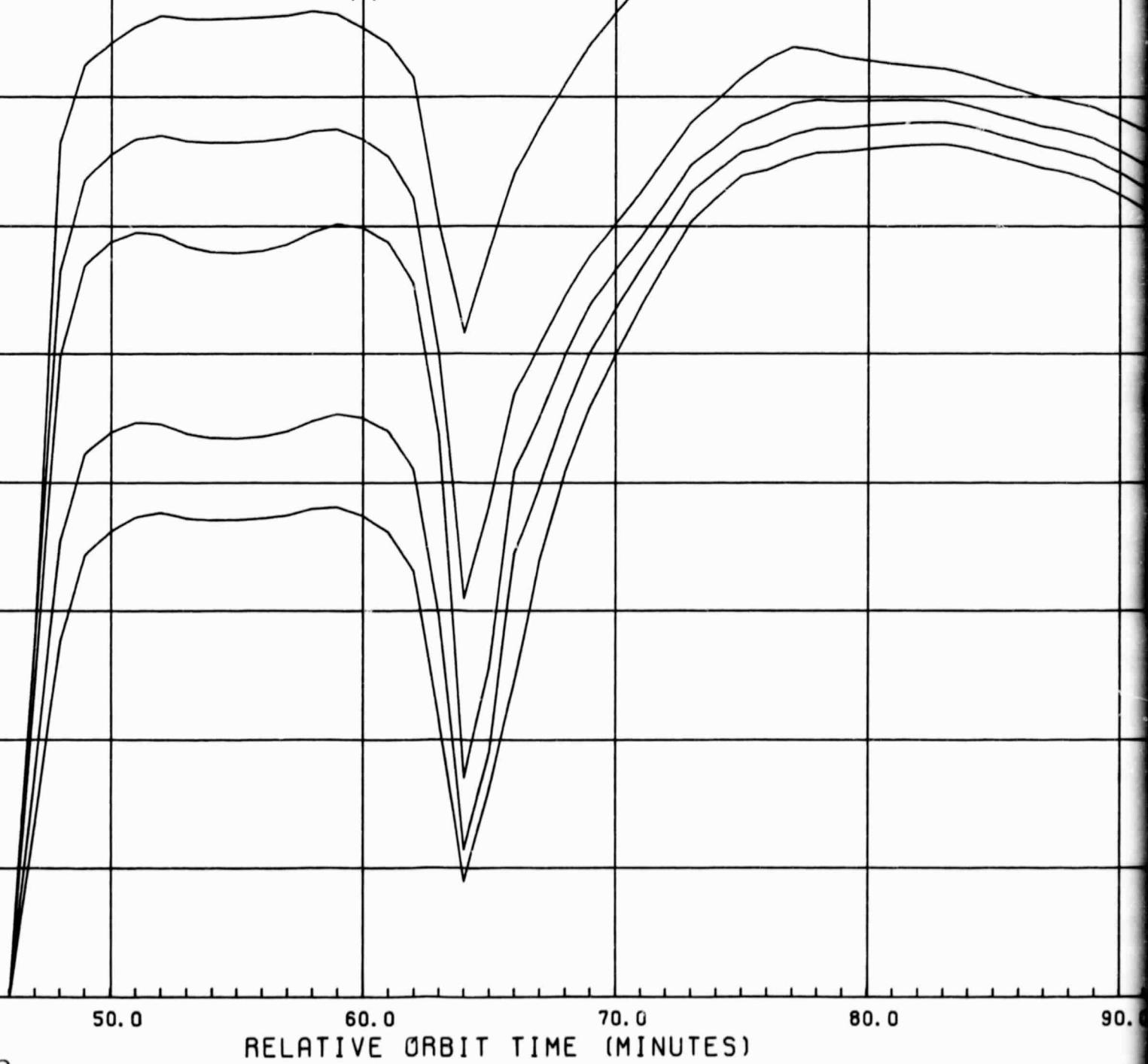


ORIGINAL PAGE IS  
OF POOR QUALITY

DOSE IN SEMI-INFINITE ALUMINUM MEDIUM

SAA

SOUTHERN HORN



ORIGINAL PAGE IS  
OF POOR QUALITY

FIGURE 23

ORBIT: TOPEX/WORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: BARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: RE17-LO

MISSION DURATION: 36.00 MO

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

NORTHERN  
← HORN

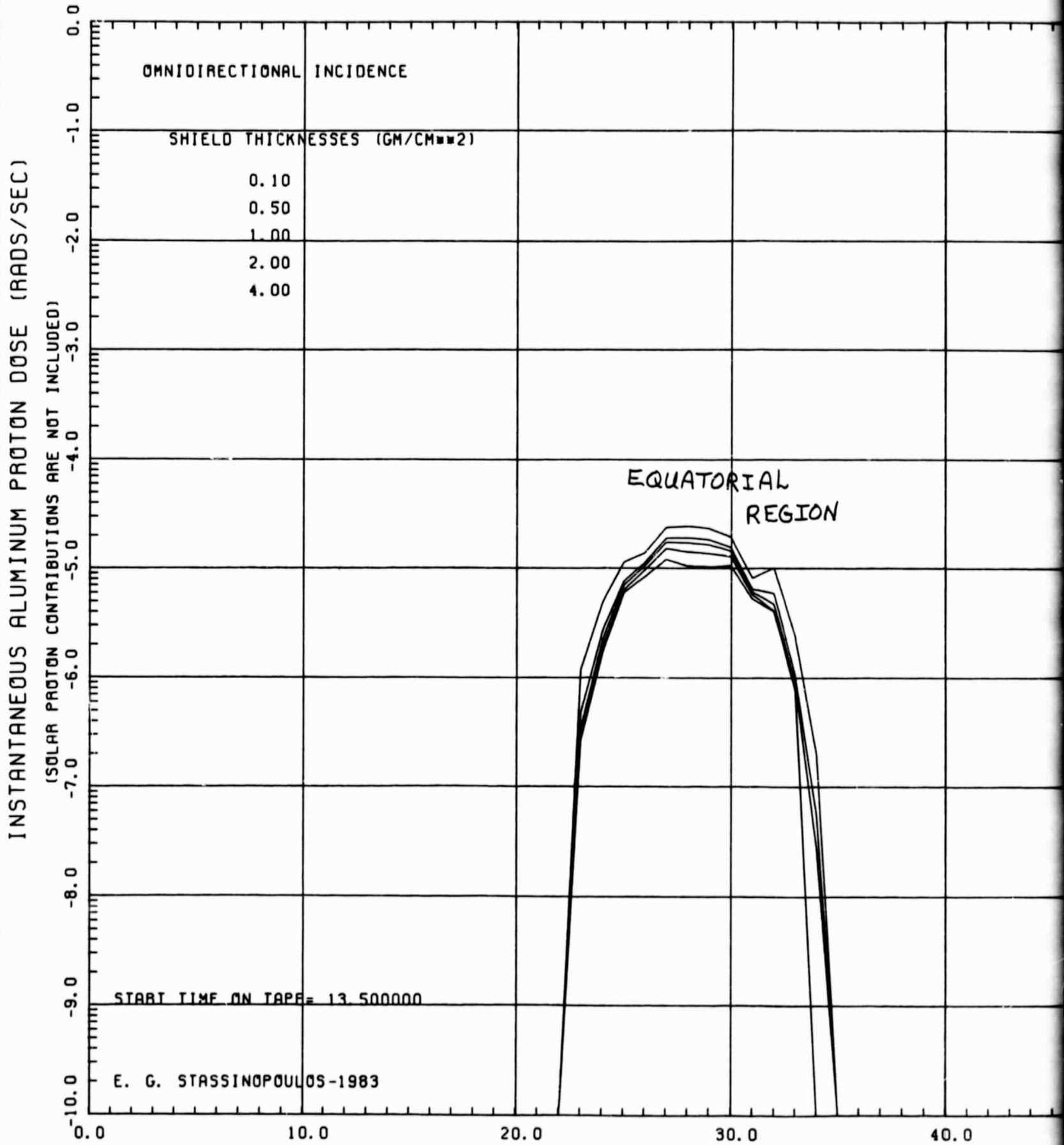
STOP TIME ON TAPF= 15.99999

NASA-GSFC

90.0 100.0 110.0 120.0 130.0

3 FOLDOUT FRAME

ORIGINAL PAGE IS  
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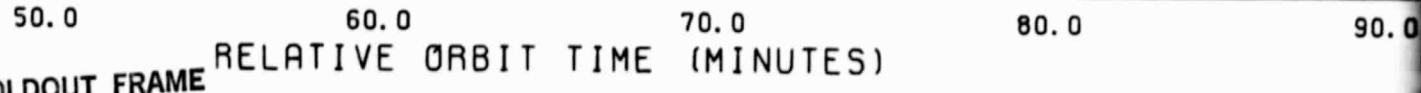


FOLDOUT FRAME

DOSE AT CENTER OF ALUMINUM SPHERES

ORIGINAL PAGE IS  
OF POOR QUALITY

SAA



2 FOLDOUT FRAME

# FIGURE 24

ORBIT: TOPEX/WORST  
63 DGR/1334-1334 KM

EPOCH: 1989.2

MODELS:

FIELD: BARR/75

TRAPPED PROTONS: AP8

INNER ZN ELEC: AE6

OUTER ZN ELEC: AEI7-L0

MISSION DURATION: 36.00 MO

EVALUATION PHASE: SOLAR MAX

UN FACTORS: NOT APPLIED

STOP TIME ON TAPF= 15.599999

NASA-GSFC

90.0

100.0

110.0

120.0

130.0

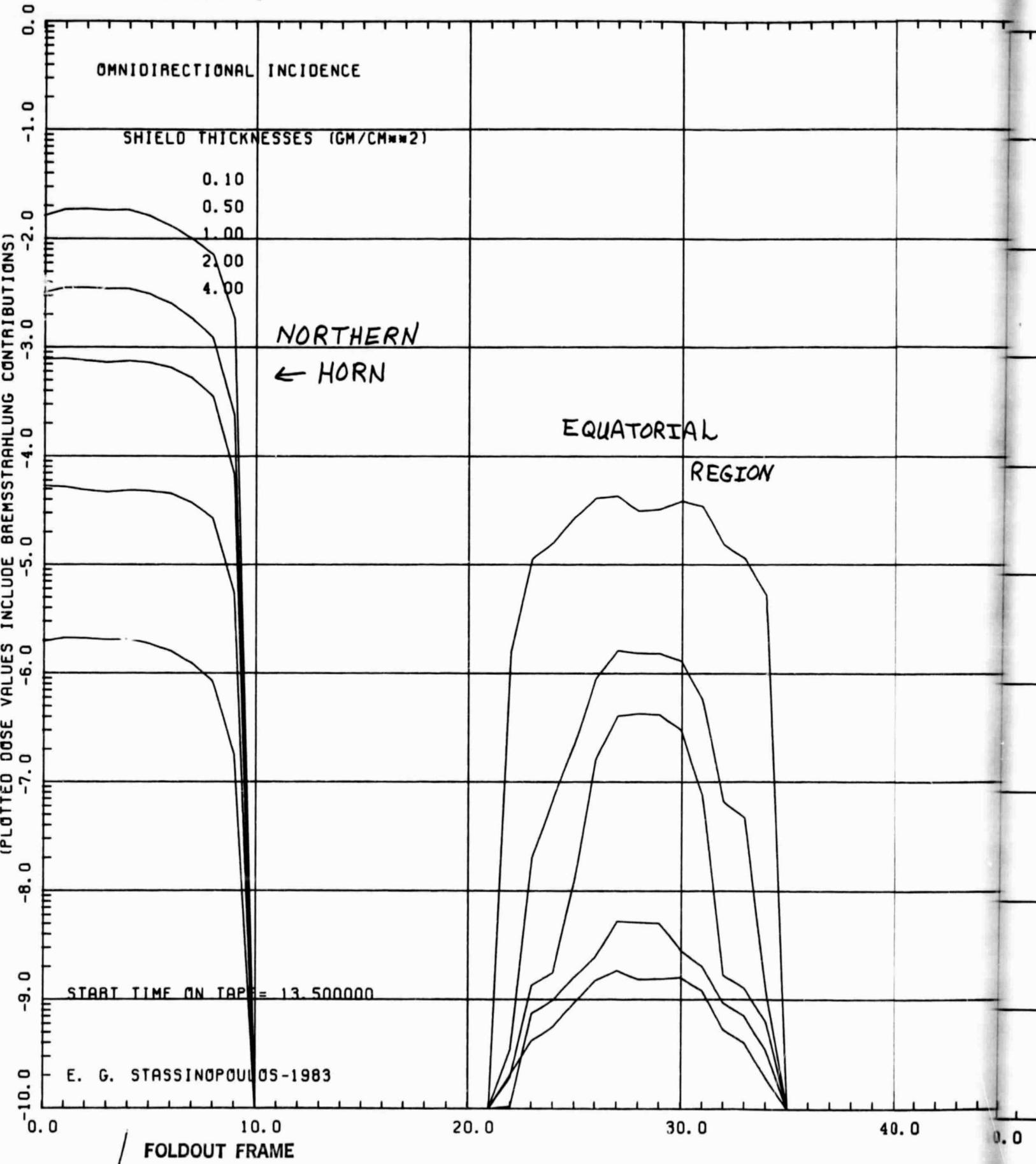
3

FOLDOUT FRAME

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OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY

INSTANTANEOUS ALUMINUM ELECTRON DOSE (RAD/S/SEC)



ORIGINAL PAGE IS  
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DOSE AT CENTER OF ALUMINUM SPHERES

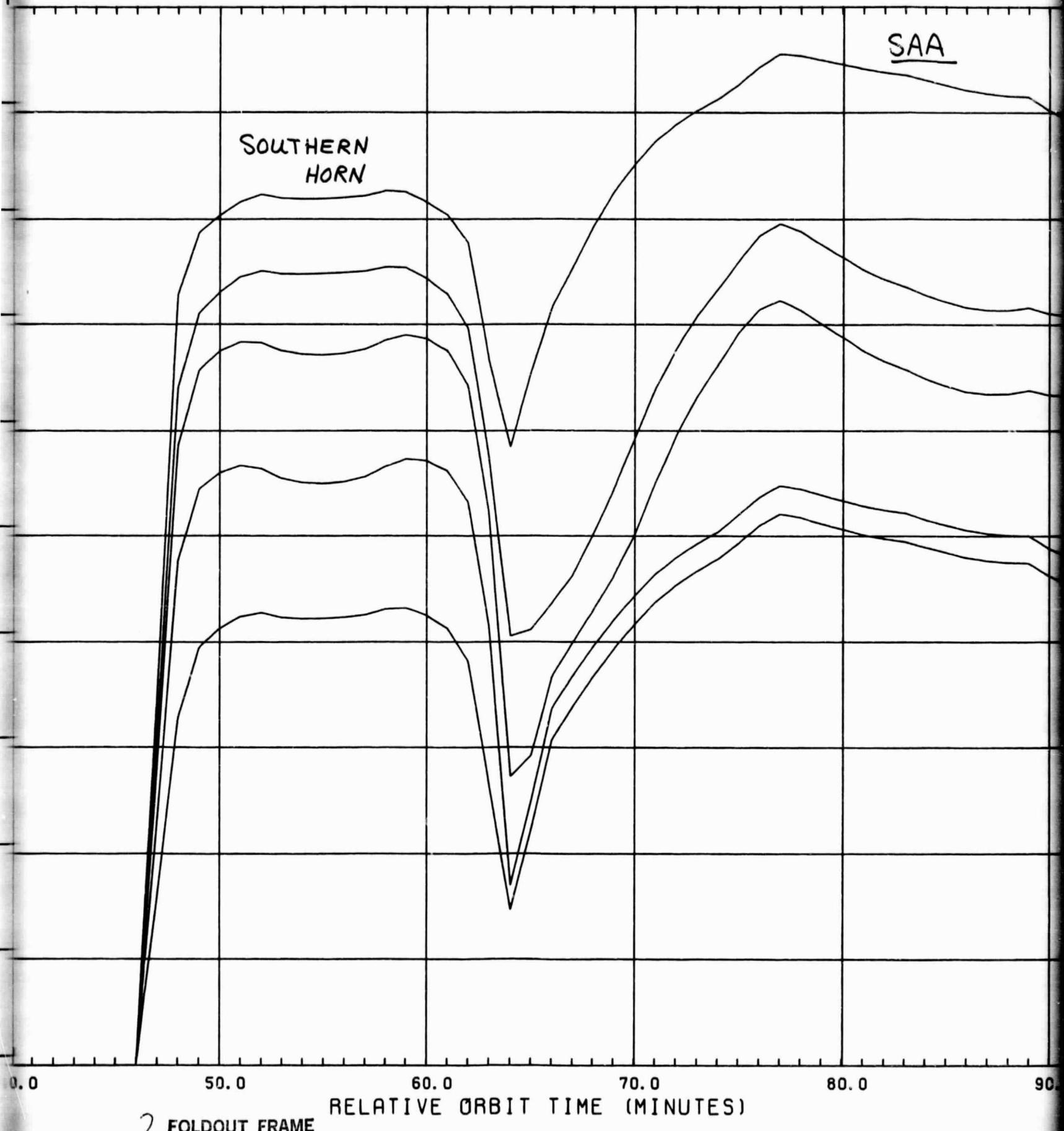
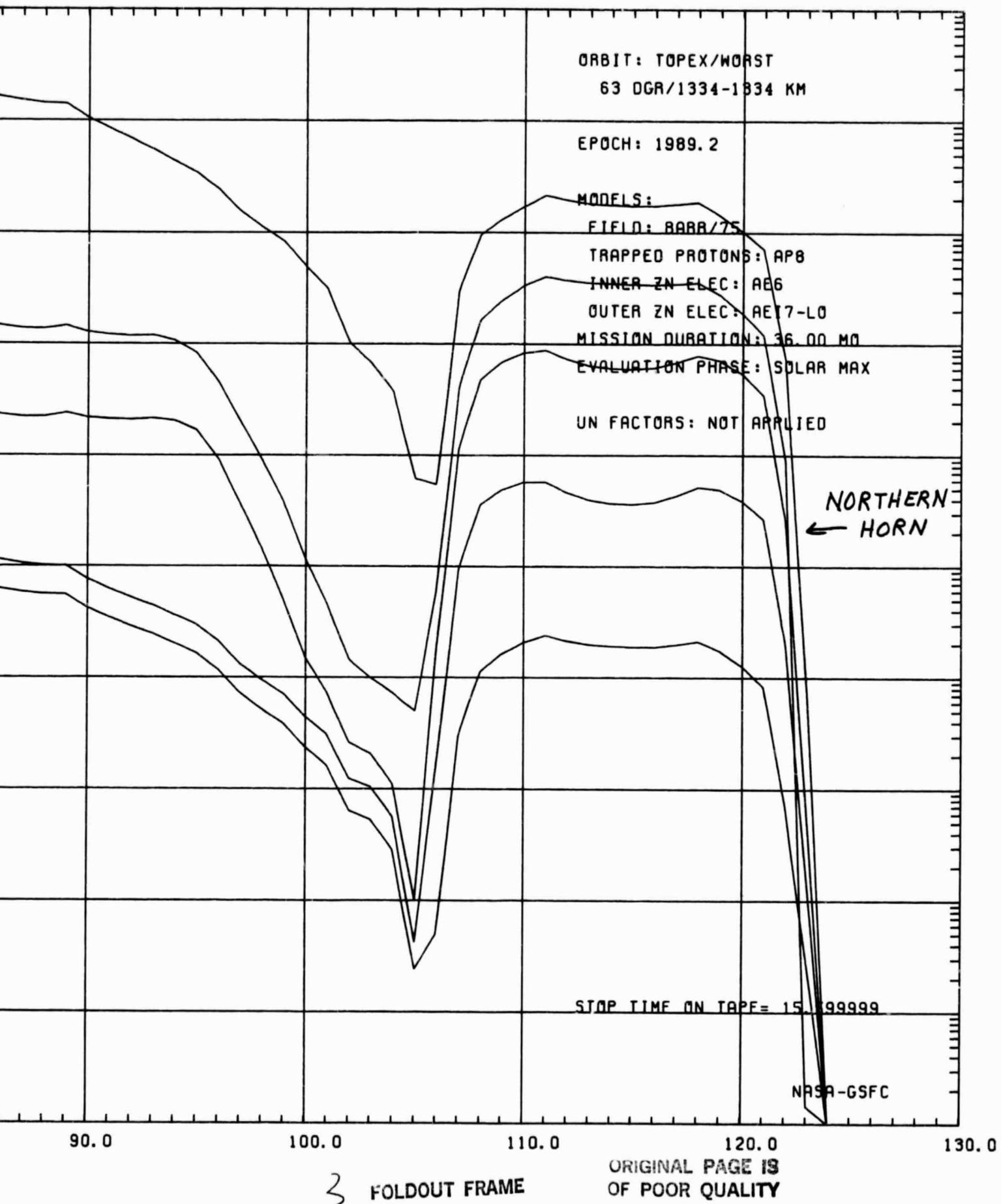
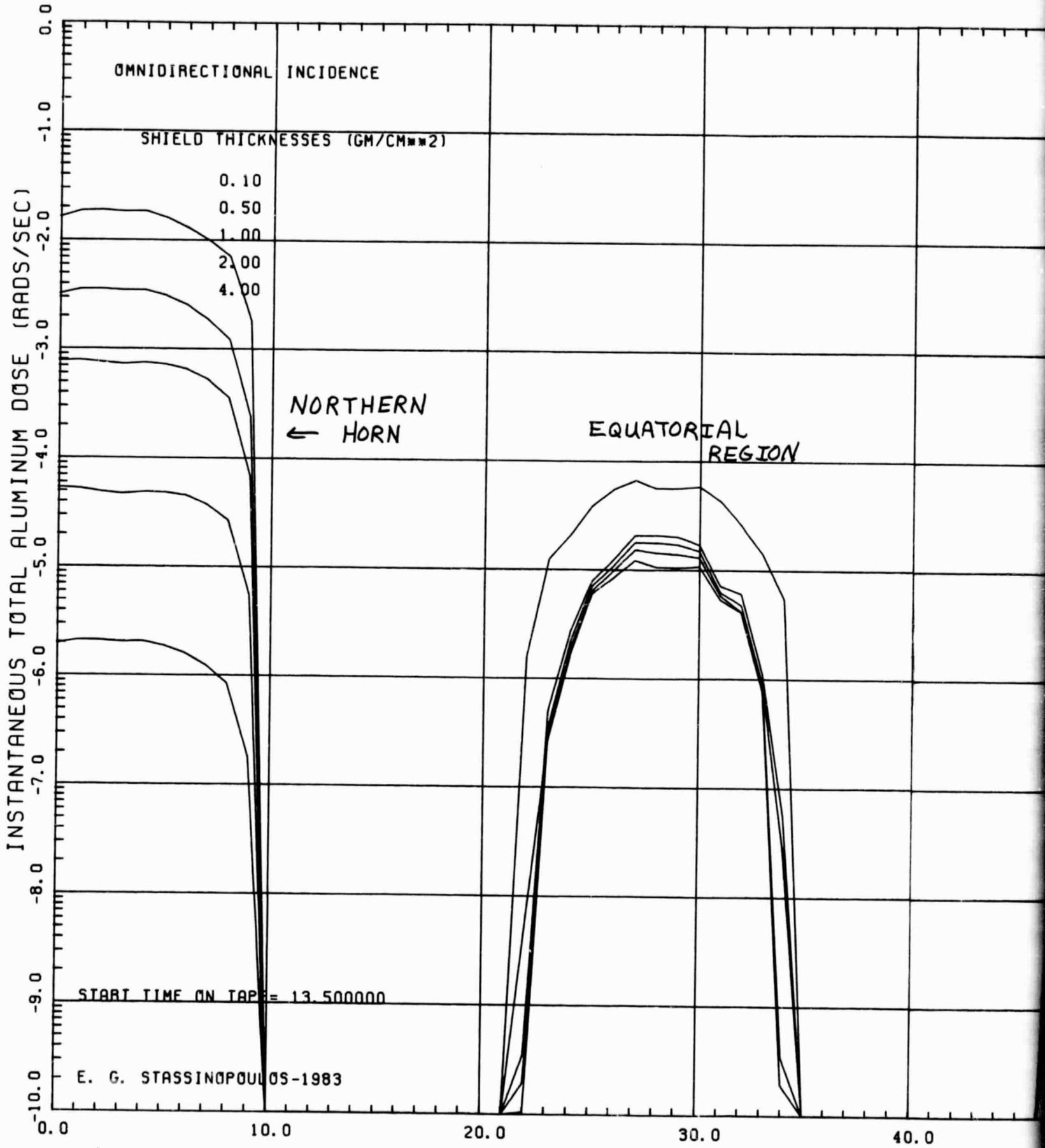


FIGURE 25



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OF POOR QUALITY

(4)



FOLDOUT FRAME

ORIGINAL PAGE IS  
OF POOR QUALITY

DOSE AT CENTER OF ALUMINUM SPHERES

SAA

SOUTHERN  
HORN

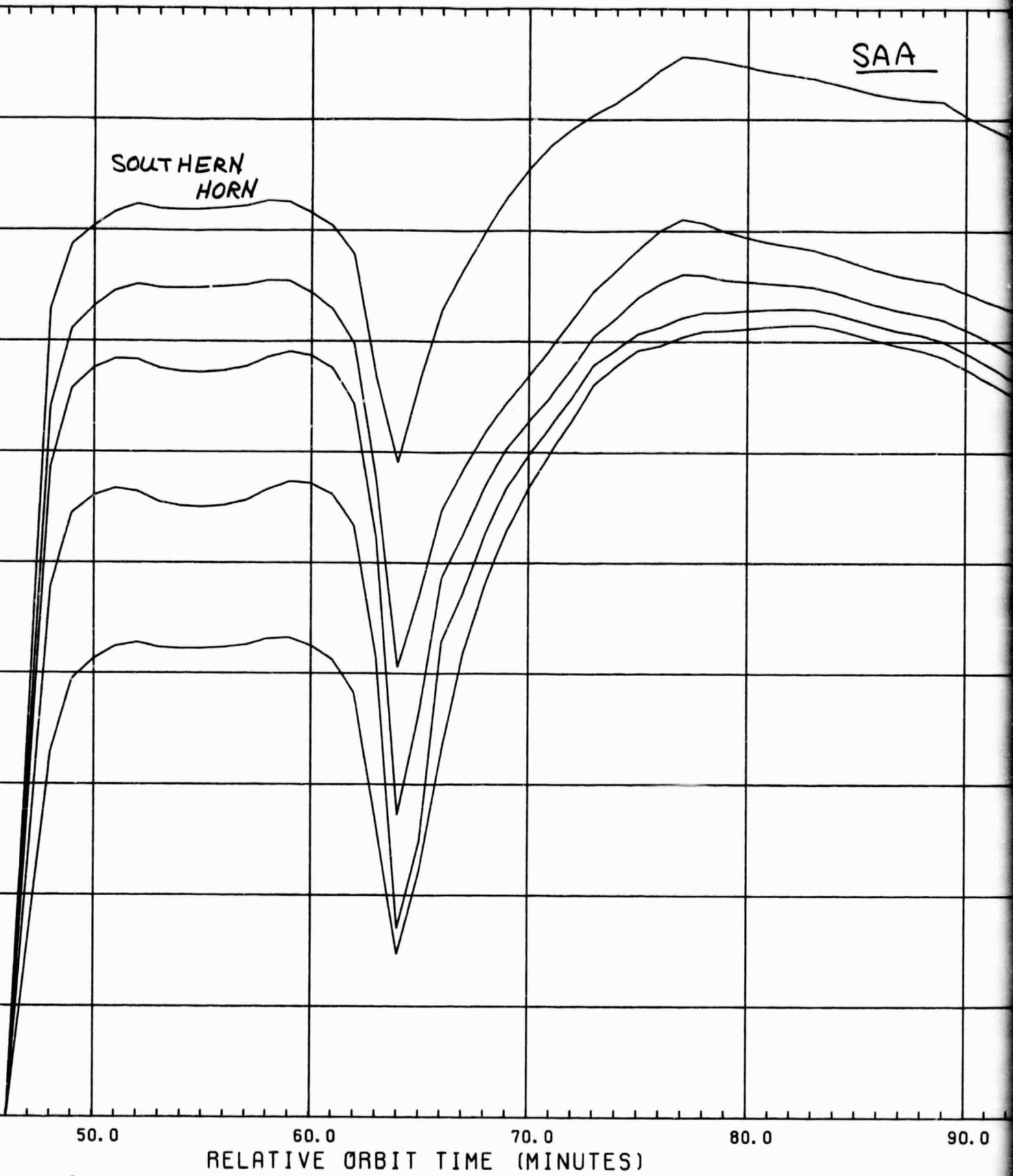


FIGURE 26

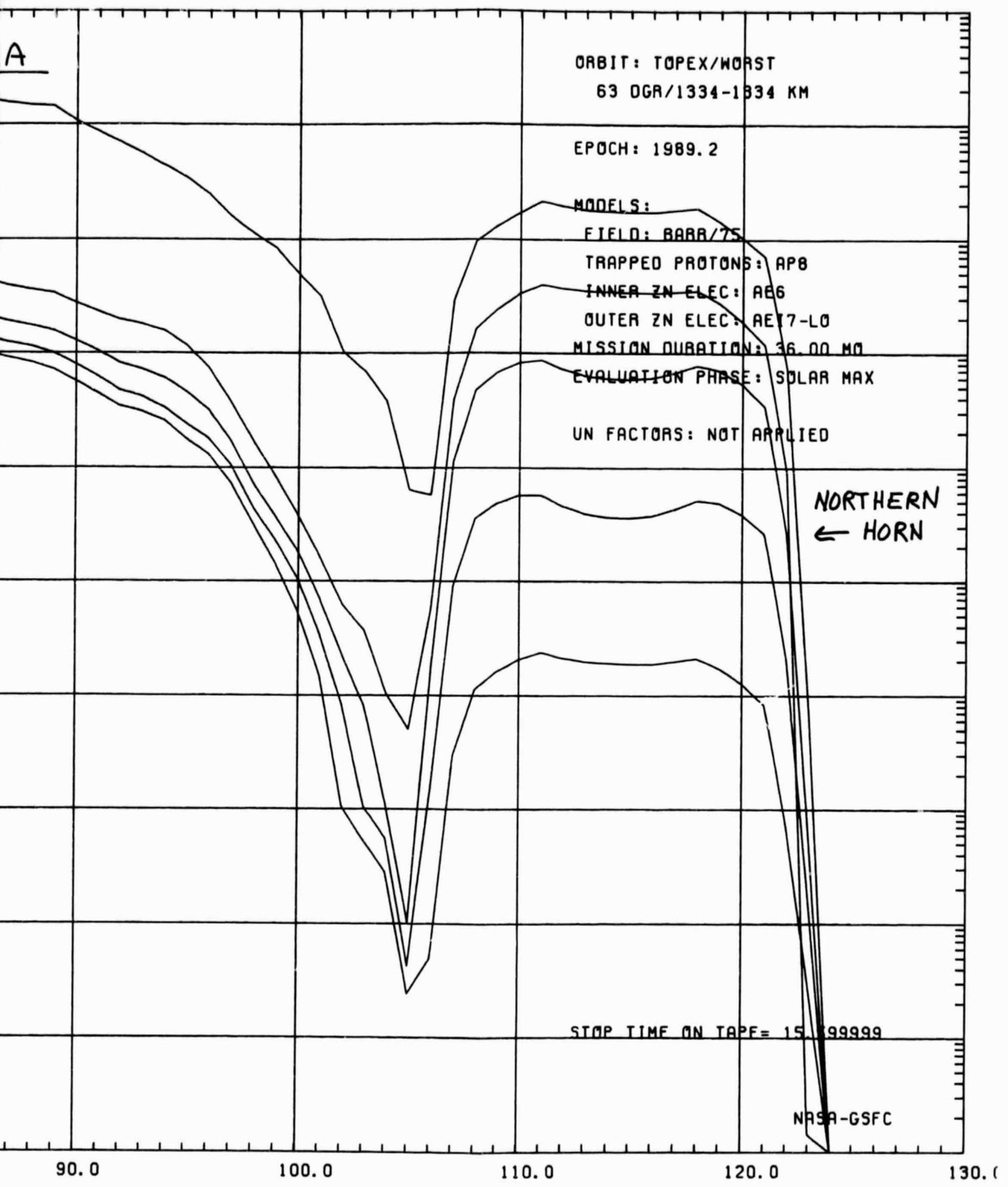


FIGURE 27

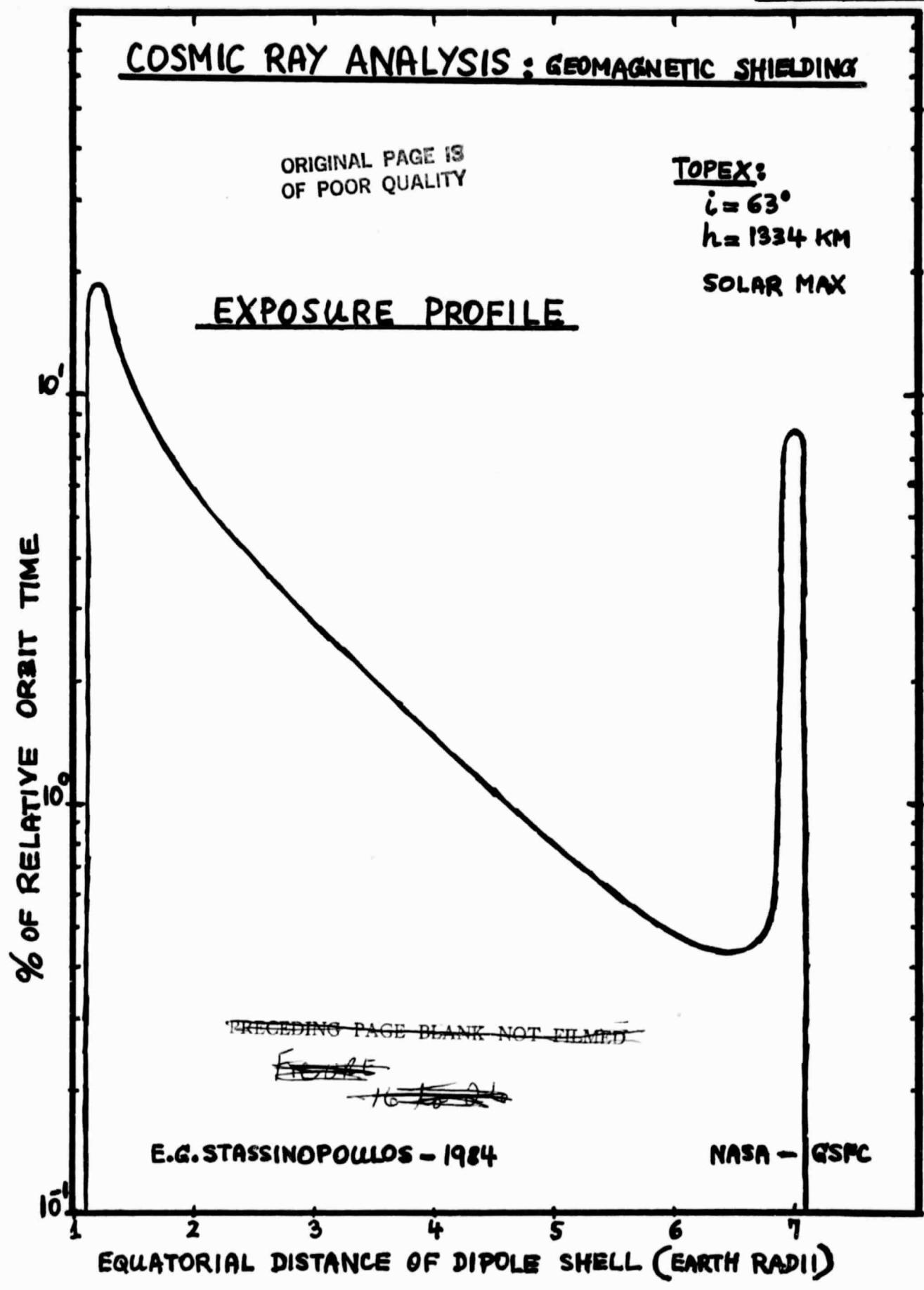


Figure 28

COSMIC RAY ANALYSIS: GEOMAGNETIC SHIELDING

ACCESSIBILITY GRAPH

TOPEX:  
 $i = 63^\circ$   
 $h = 1334 \text{ KM}$

SOLAR MAX

ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-GSFC

E.G. STASSINOPoulos - 1984

% OF RELATIVE ORBIT TIME

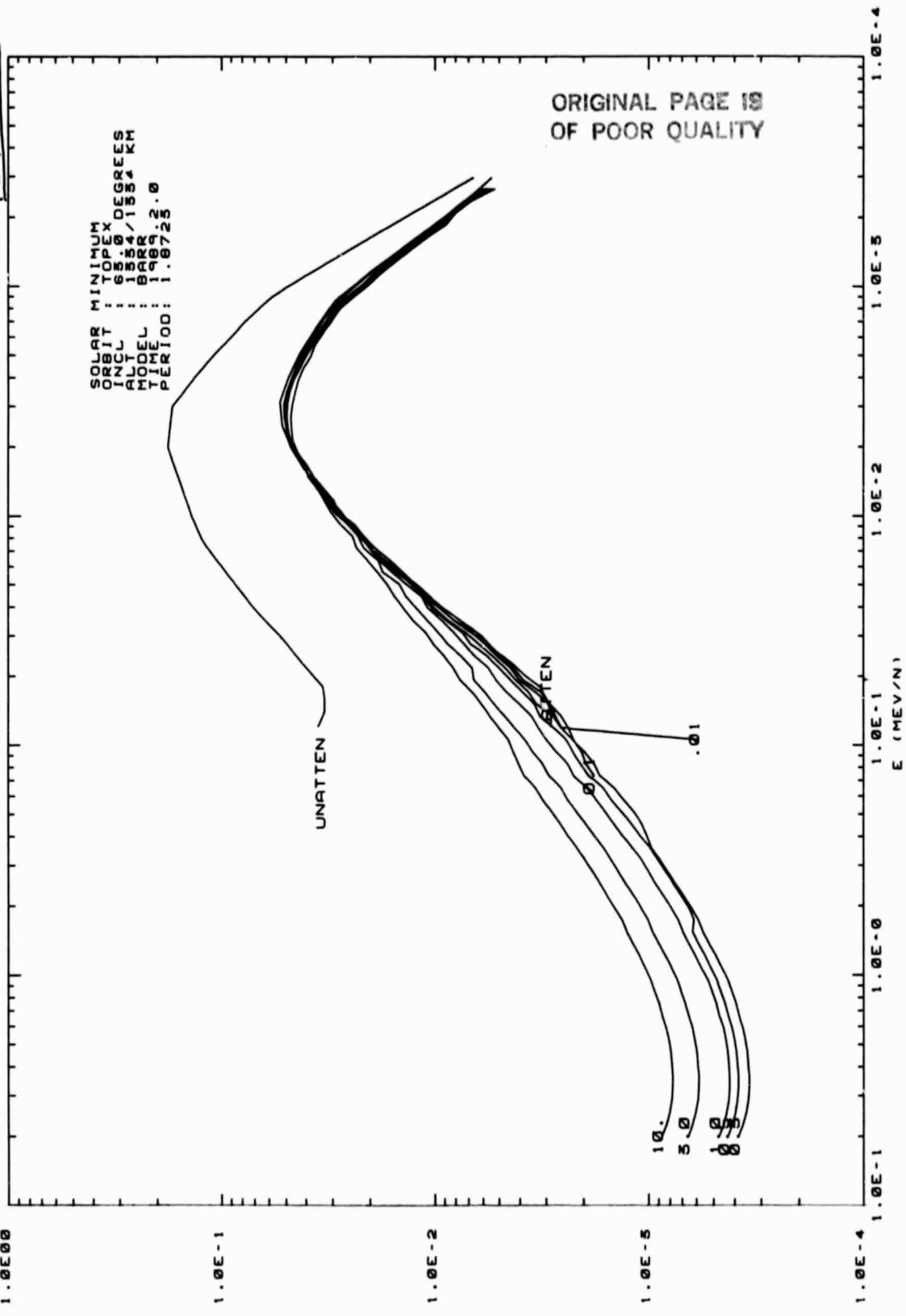
$10^0$        $50$        $10^1$

$10^3$   
 $10^4$   
 $10^5$



TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: Li  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=3  
A=6.94

FIGURE 30



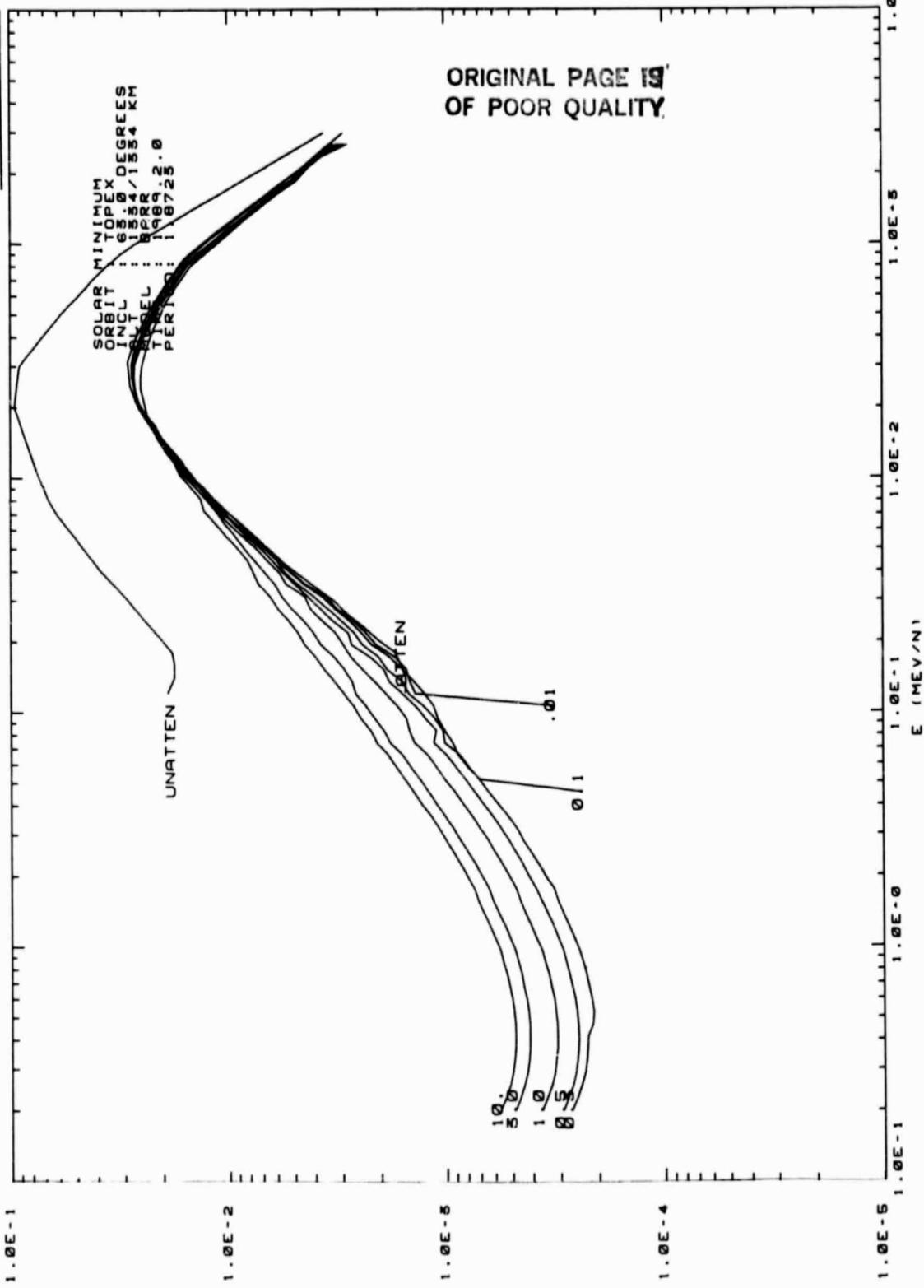
DIFF FLUXES (PARTICLES/CM<sup>2</sup>\*DAY\*MEV/N)

E.G. STASSINOPOULOS

NASA-GSFC, 1984

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR:  
BE  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
Z=4 ALUMINUM SHIELDS  
 $A=9.01$

FIGURE 31



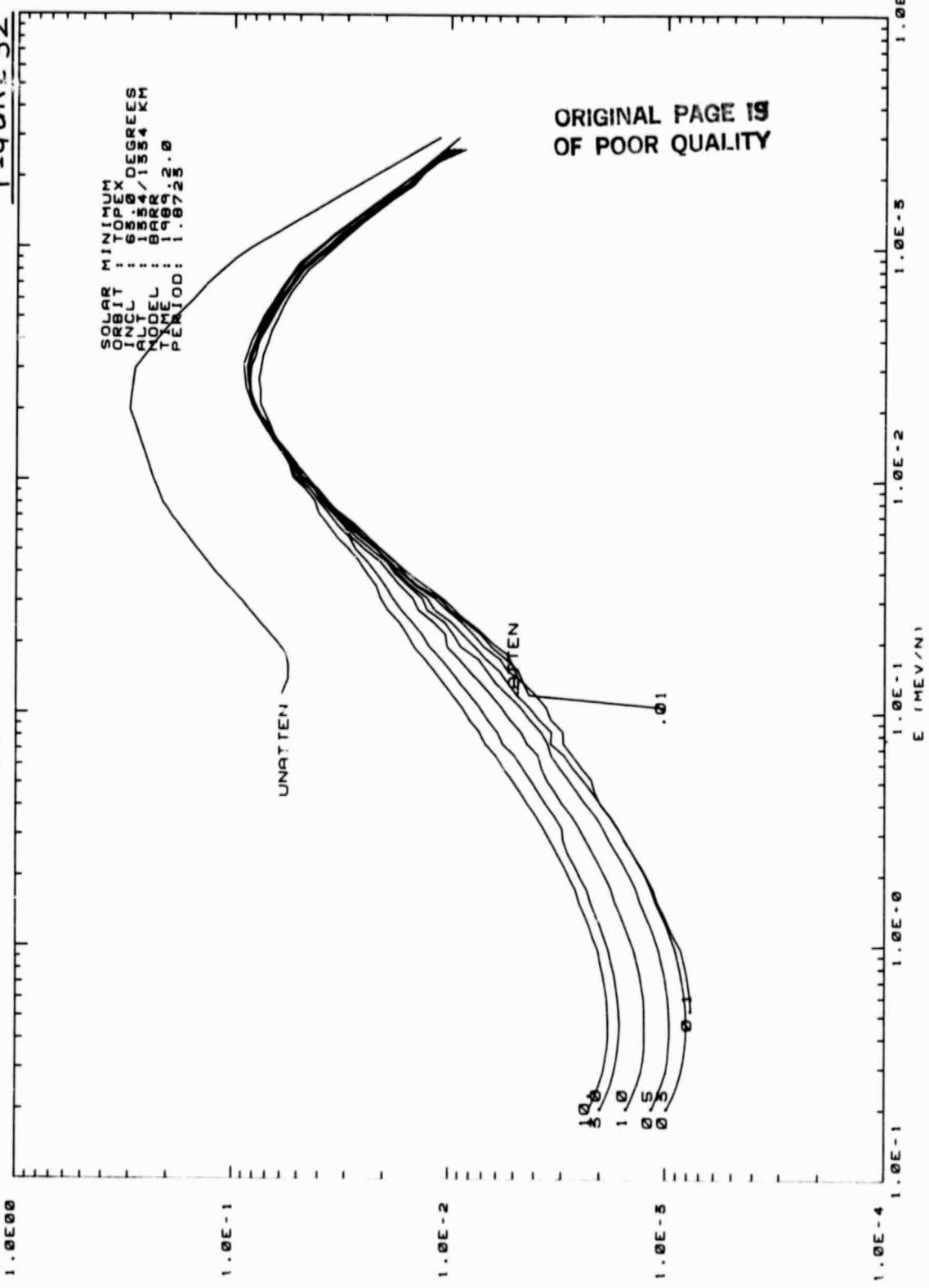
DIFF FLUXES (PARTICLES/CM<sup>2</sup>·DAY·MEV/NI)

E.G. STASSINOPoulos

NASA-GSFC, 1984

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: B  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=5  
A=10.82

FIGURE 32



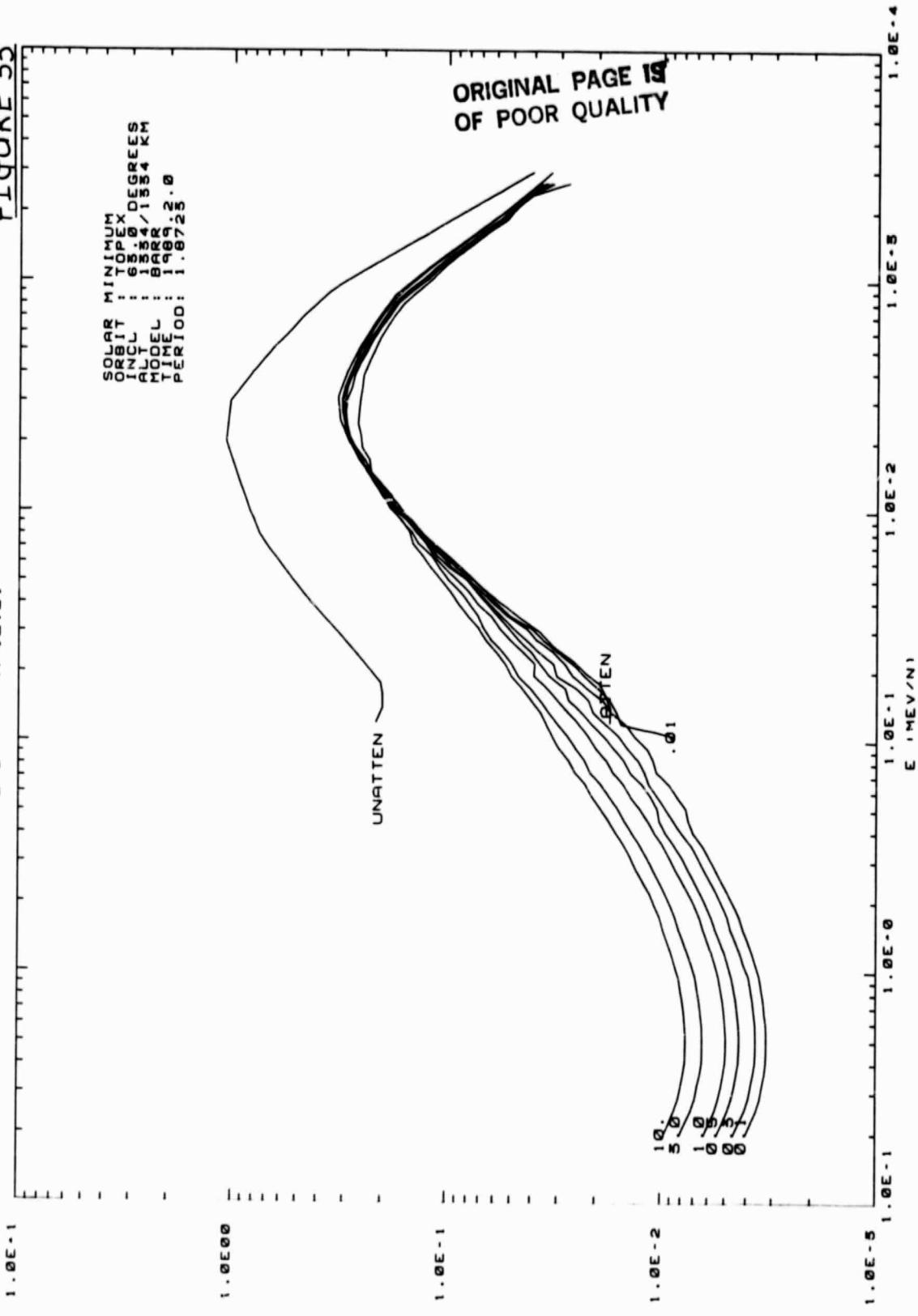
E.G. STASSINOPOULOS

NASA-GSFC, 1984

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: C  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS

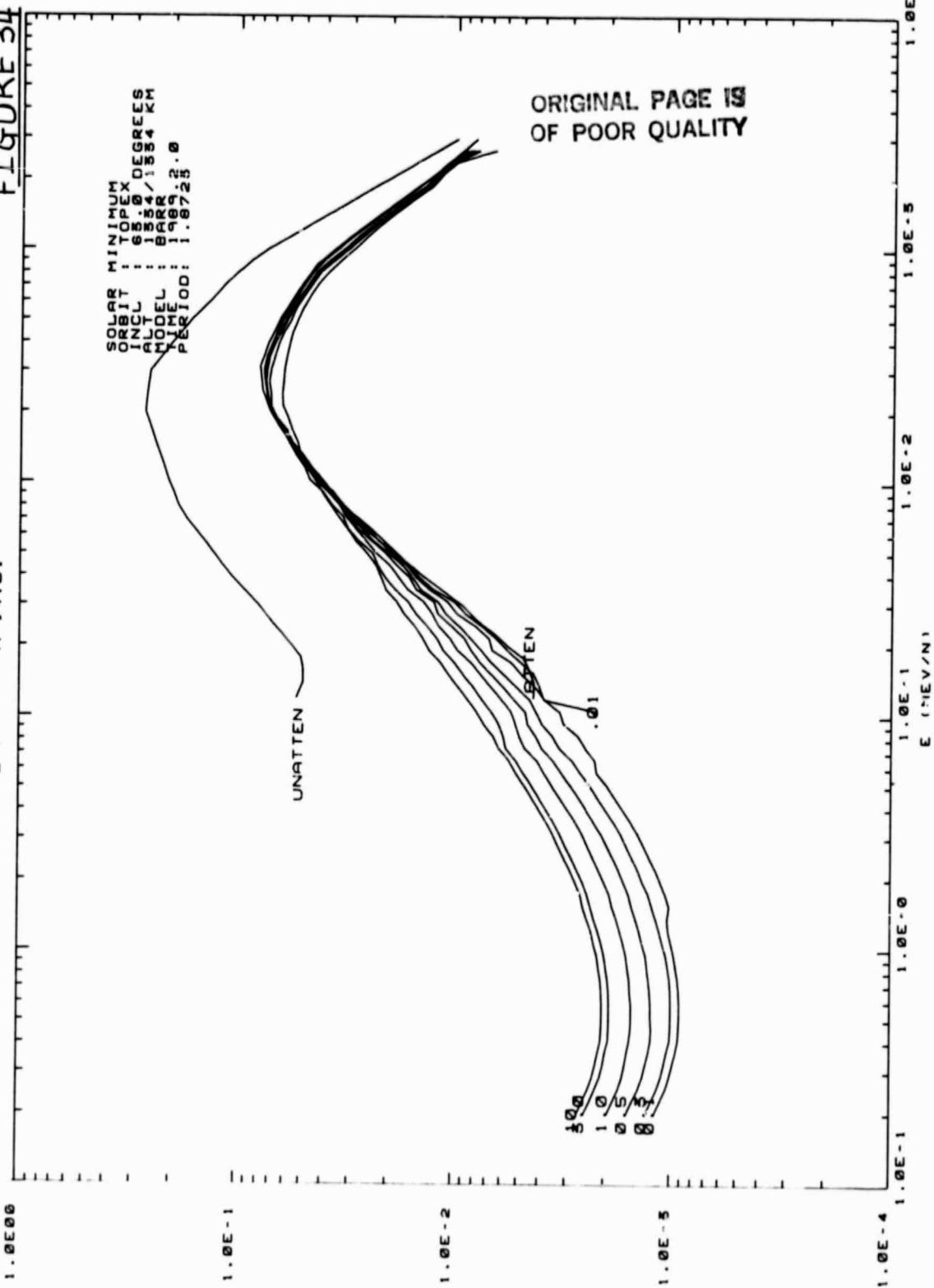
Z=6 A=12.01

FIGURE 33



**TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: N  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS**

FIGURE 34



DIFF FLUXES (PARTICLES/CM<sup>2</sup>DAY-MEV/N)

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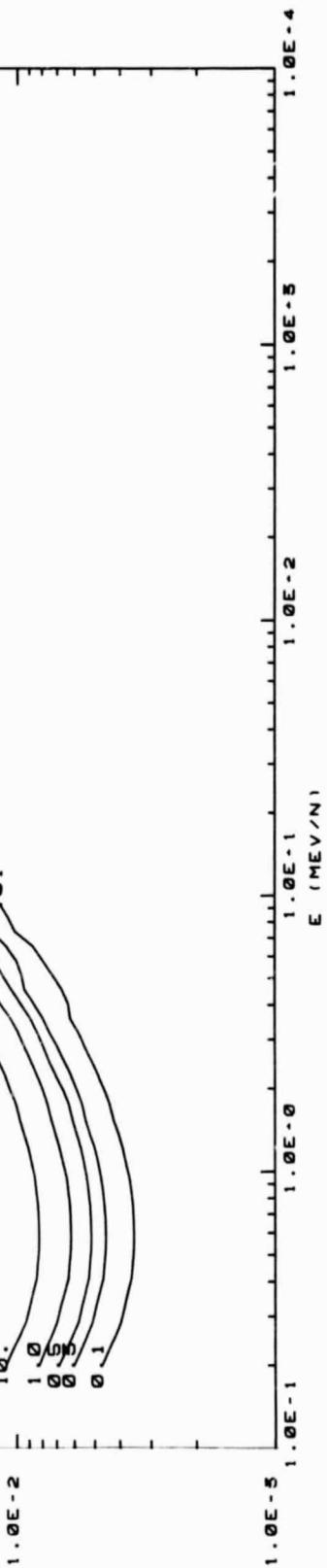
FIGURE 35

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR:  
0  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=8  
A=16.00

SOLAR MINIMUM  
ORBIT: TOPEX  
INCCL: 68.0 DEGREES  
ALTEL: 1334 / 1334 KM  
MODEL: BARR  
TIME: 1989-2-0  
PERIOD: 1.0E-2

DIFF FLUXES (PARTICLES/CM<sup>-2</sup>DAY-MEV/N)

1.0E-1  
1.0E-2  
1.0E-3



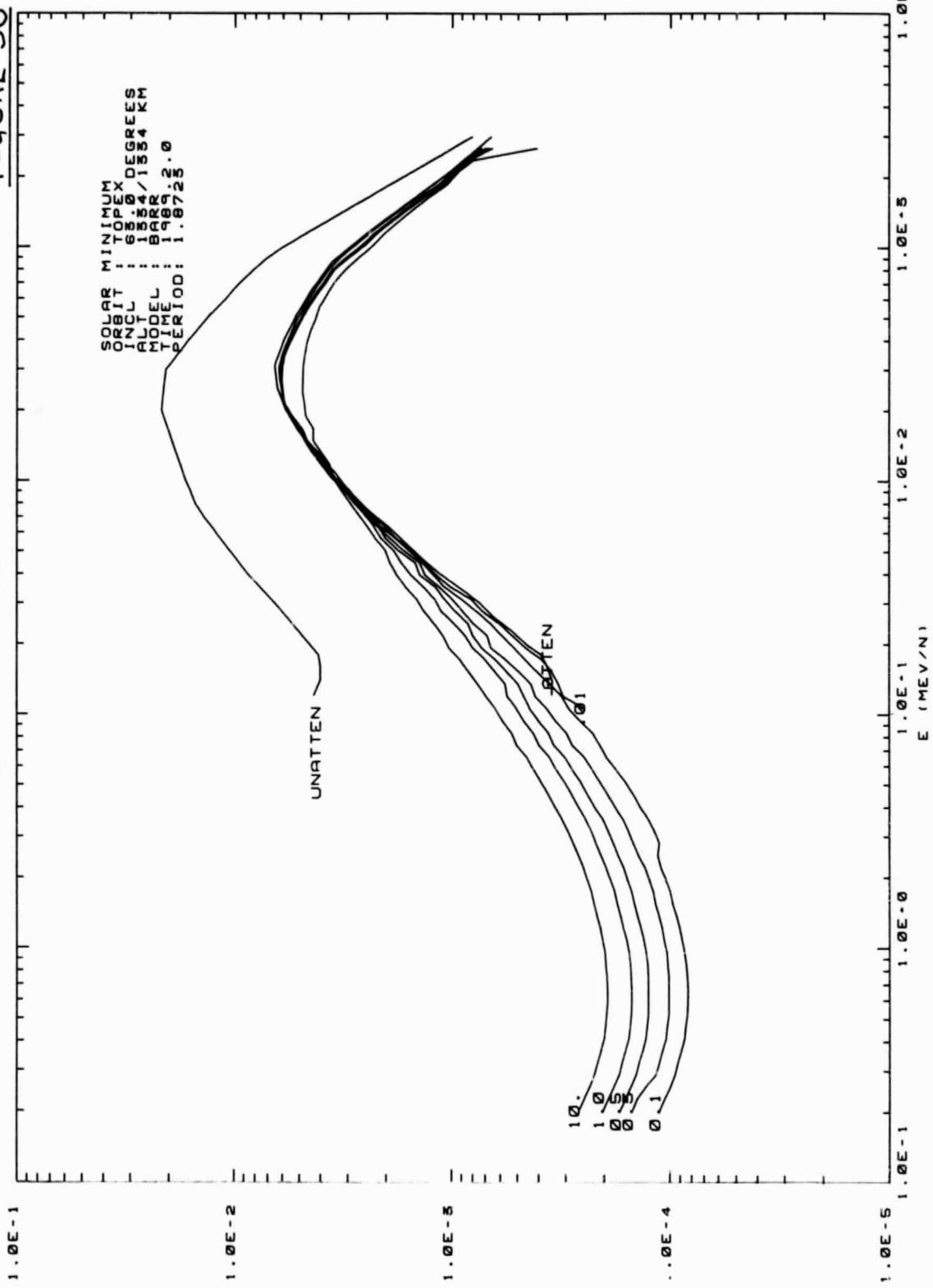
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NASA-GSFC, 1984

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OF POOR QUALITY

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
A.19.00

FIGURE 36



DIFF FLUXES (PARTICLES/CM<sup>2</sup>·DAY·MEV/N)

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: NE  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z = 10$   
 $A = 20.18$

FIGURE 37

SOLAR MINIMUM  
TOPEX  
ORBIT : 63.0 DEGREES  
INCCL : 133.4 / 133.4 KM  
ALTITUDE :  
MODEL :  
TIME : 1999-2-8  
PERIOD : 1.8725

ORIGINAL PAGE IS  
OF POOR QUALITY

UNATTEN

1.0E-2

1.0E-5

1.0E-4

1.0E-1  
E (MEV/N)

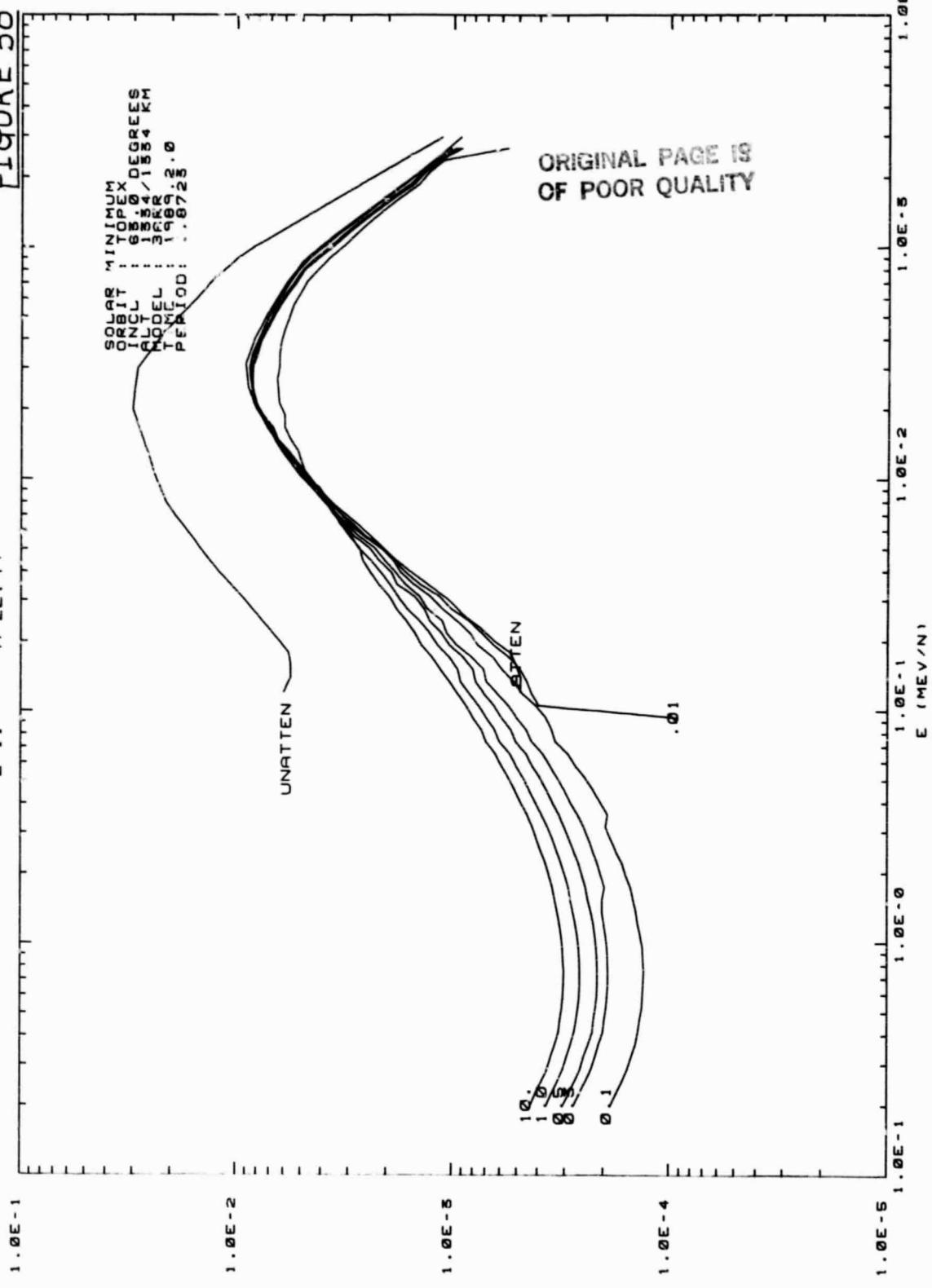
DIFF FLUXES (PARTICLES/CM<sup>-2</sup>/DAY-MEV/N)

E.G. STASSINOPoulos

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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: NA  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=11 A=22.9

FIGURE 38

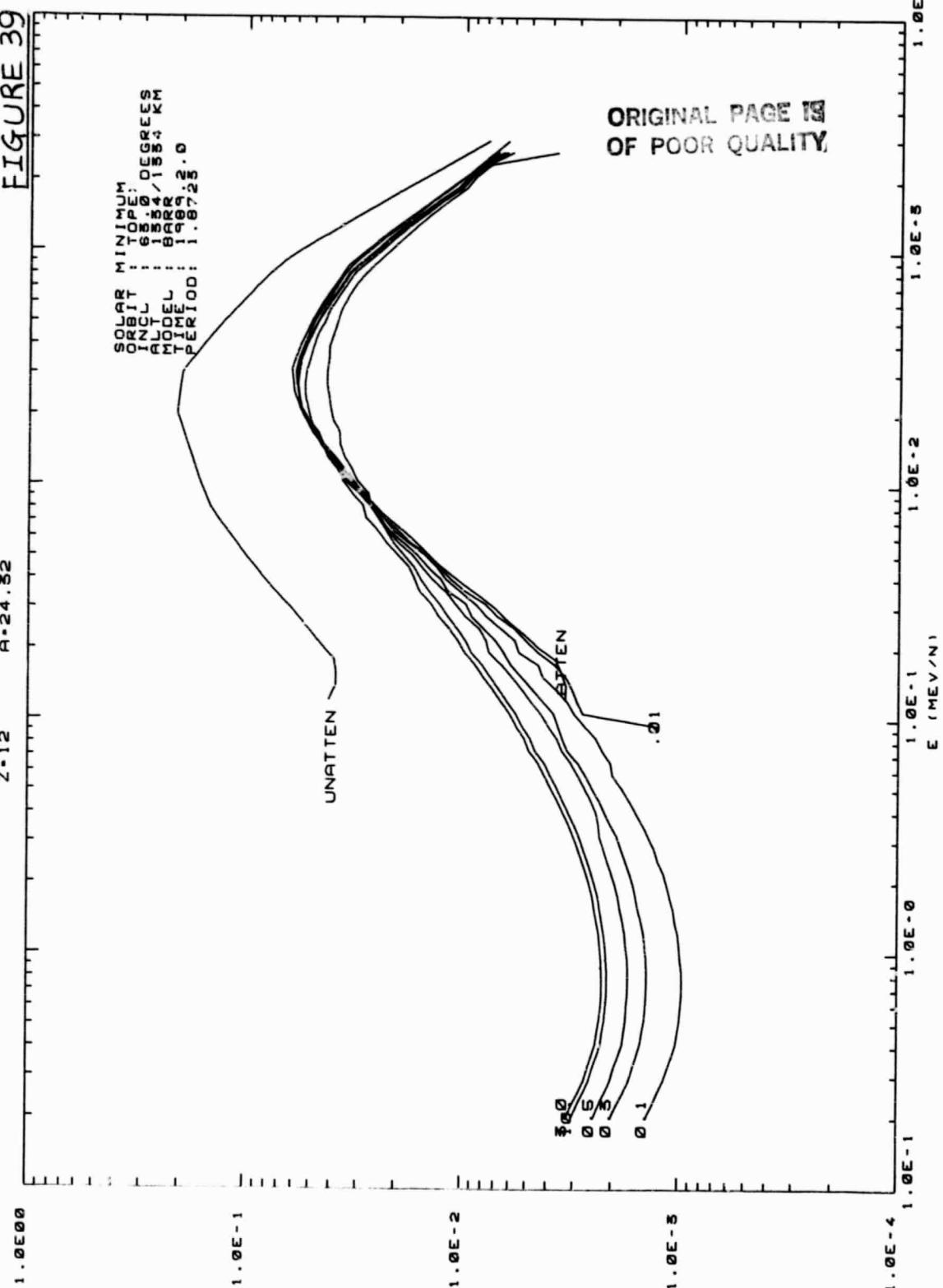


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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: MG  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
Z=12 ALUMINUM SHIELDS A=24.82

FIGURE 39



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MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: AL  
Differential FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z = 13$     $A = 26.98$

FIGURE 40

SOLAR MINIMUM  
ORBIT: 66.0 DEGREES  
INCL: 16.64 KM  
MODEL: BARR 2.0  
PERIOD: 1.8723

UNATTEN

1.0E-3

1.0E-4

1.0E-5

1.0E-6

DIFF FLUXES (PARTICLES/CM<sup>2</sup>DAY-MEV/N)

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E. G. STASSINOPoulos

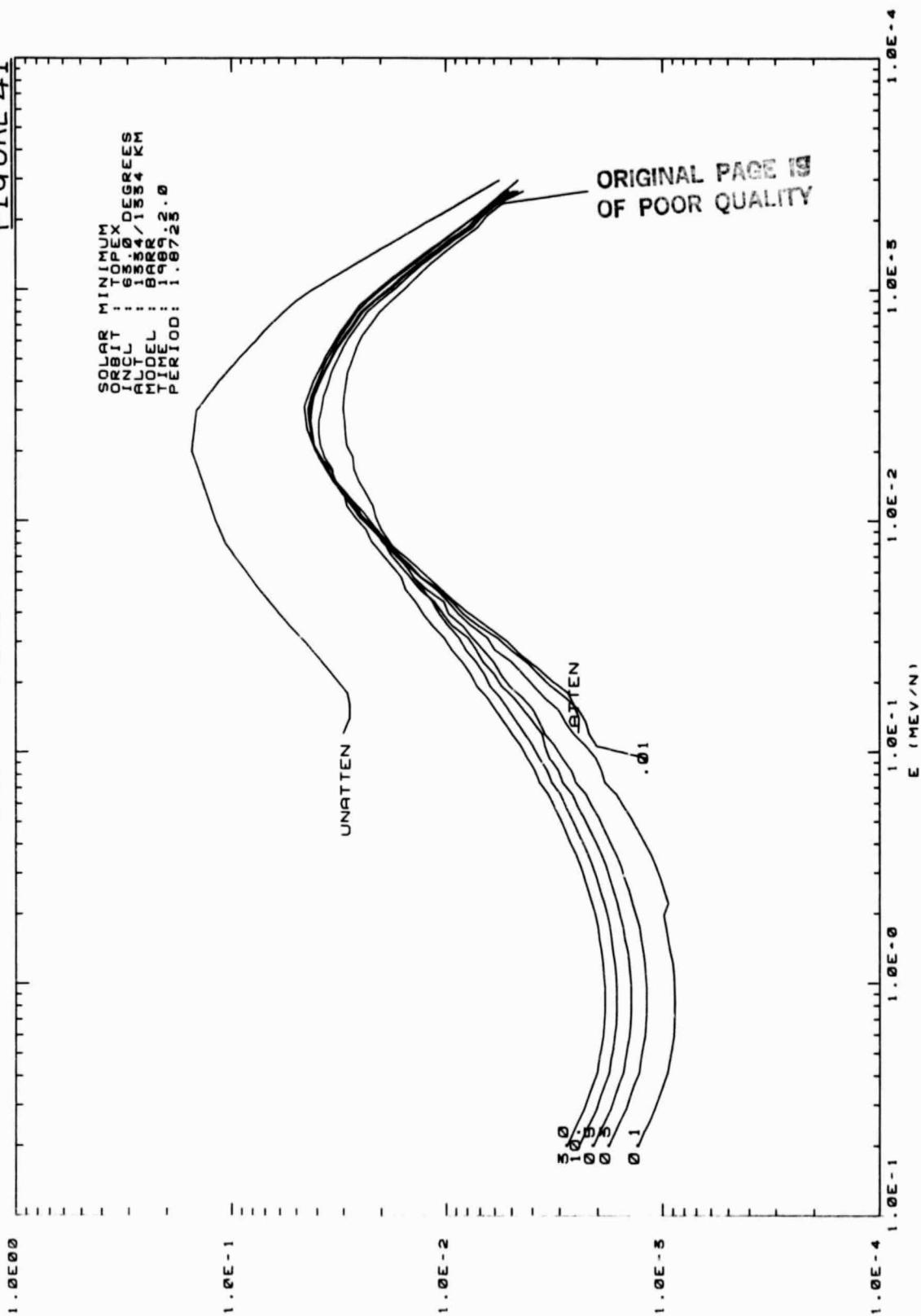
NASA-GSFC, 1984

MAGNETOSPHERIC COSMIC RAY ANALYSIS  
Differential Flux Emerging Behind Spherical  
Aluminum Shields  
 $Z=14$   $A=28.09$

FIGURE 41

SOLAR MINIMUM  
ORBIT : 65.34 / 1584 KM  
MODEL : BARR  
TIME : 1989-2-8  
PERIOD :

DIFF FLUXES (PARTICLES/CM<sup>-2</sup>DAY-MEV/N)

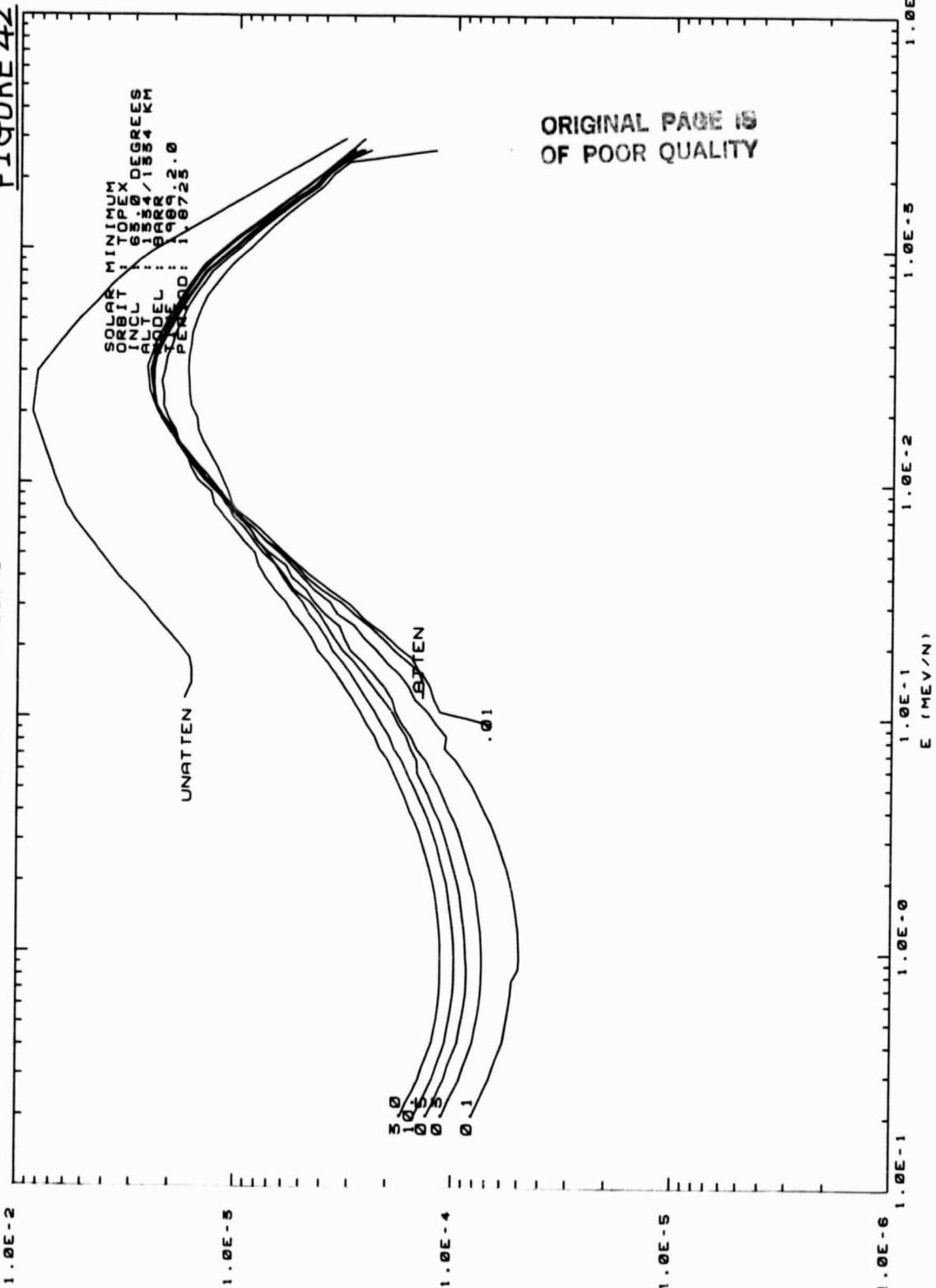


E.G. STASSINOPoulos

NASA-GSFC, 1984

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: P  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z=15$   $A=30.98$

FIGURE 42



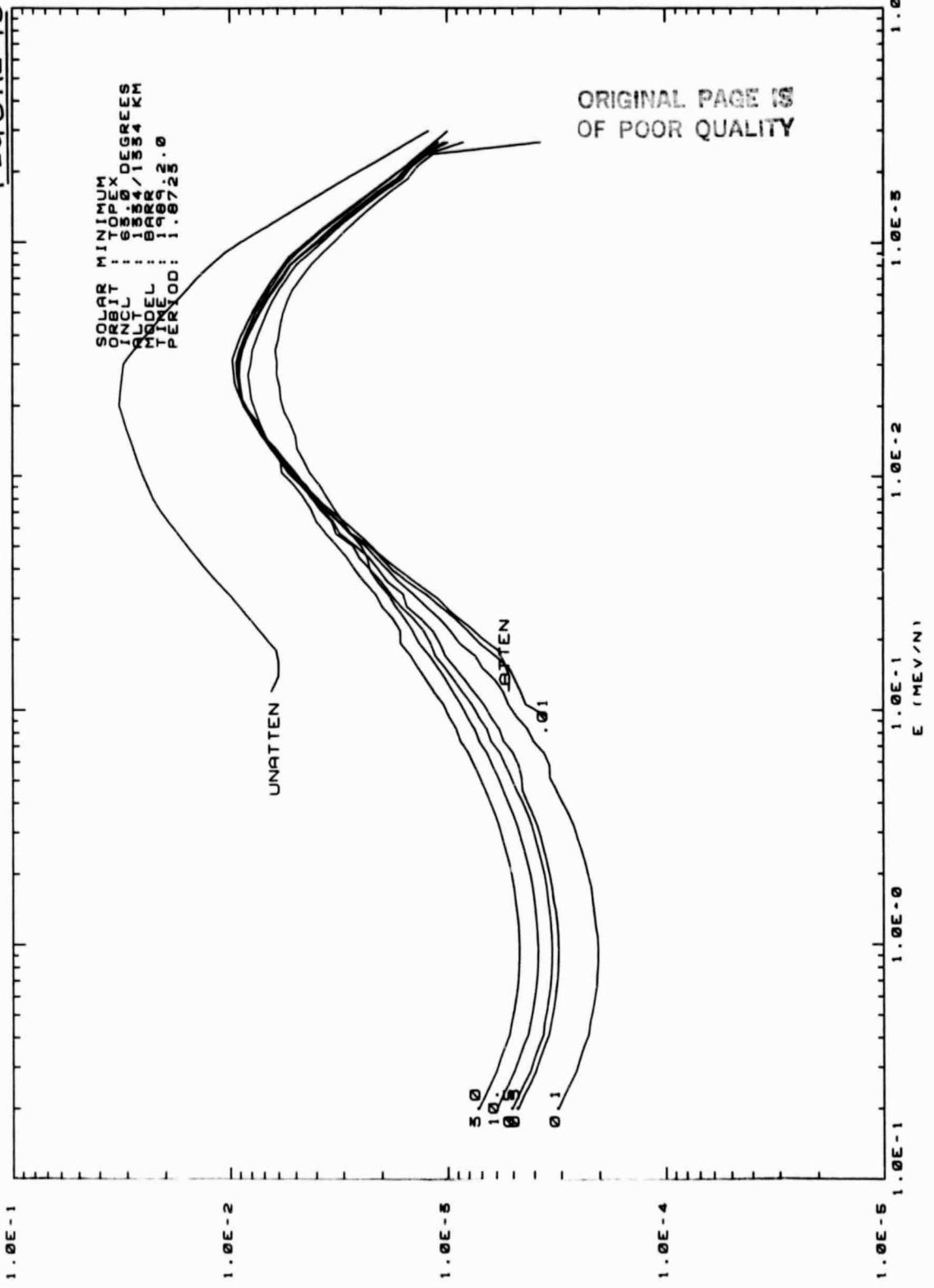
DIFF FLUXES (PARTICLES/CM<sup>2</sup>·DAY·MEV/N)

E.G. STASSINOPoulos

NASA-GSFC, 1984

TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR:  
S DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
Z=16 ALUMINUM SHIELDS  
A=32.07

FIGURE 43



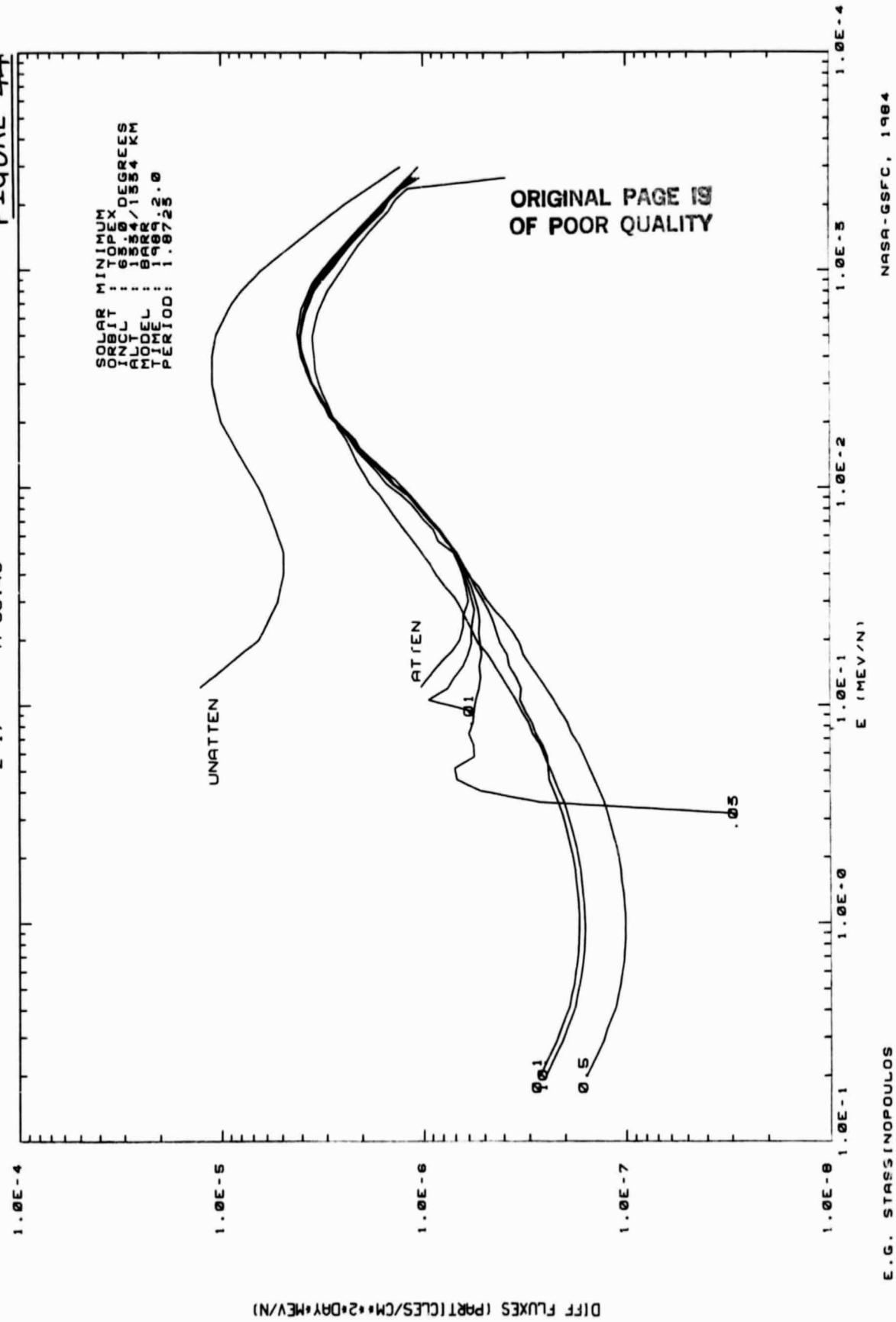
DIFF FLUXES (PARTICLES/CM<sup>2</sup>·DAY·MEV/N)

E.G. STASSINOPOULOS

NASA-GSFC, 1984

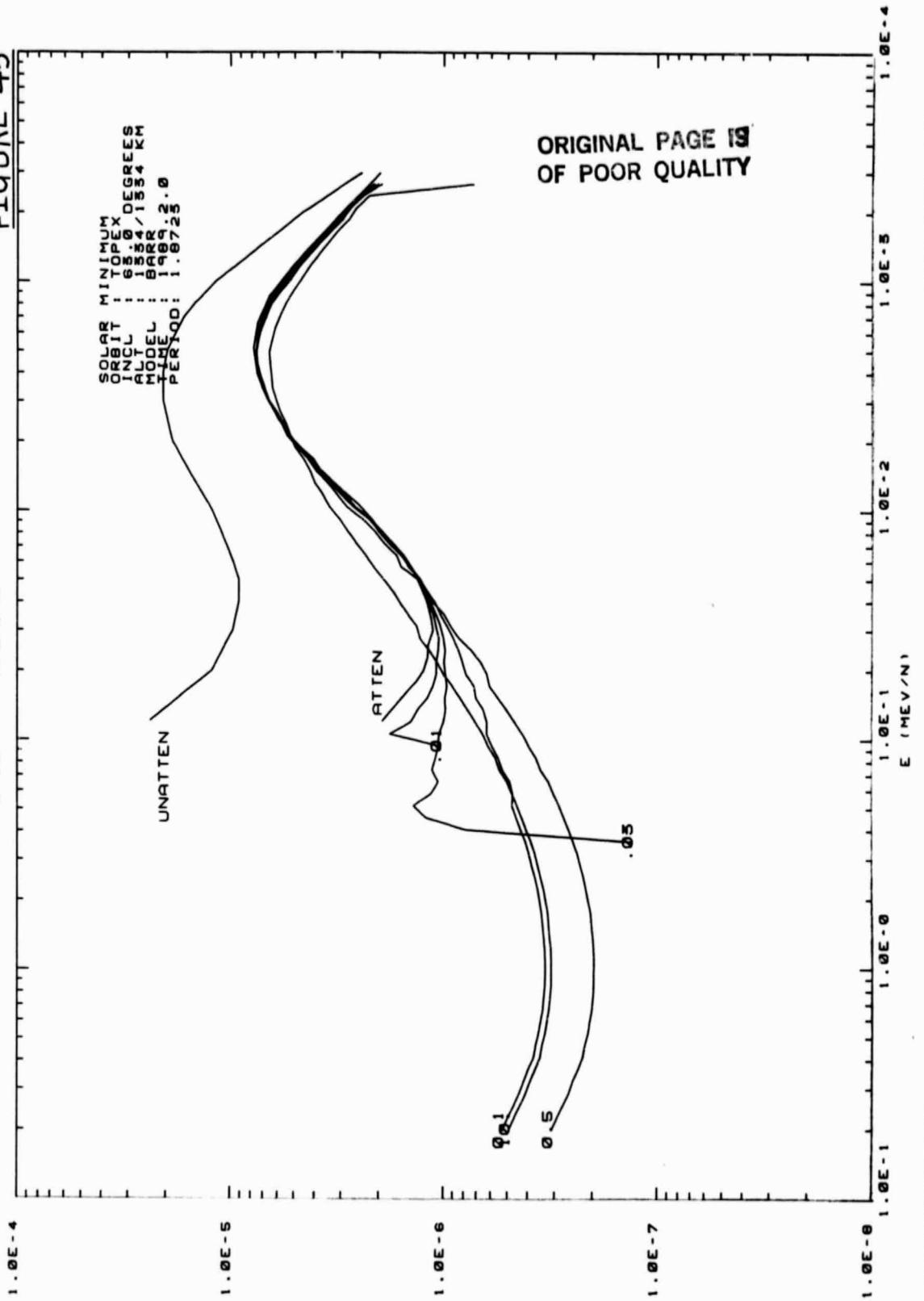
TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: CL  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
Z=17 ALUMINUM SHIELDS  
A=55.46

FIGURE 44



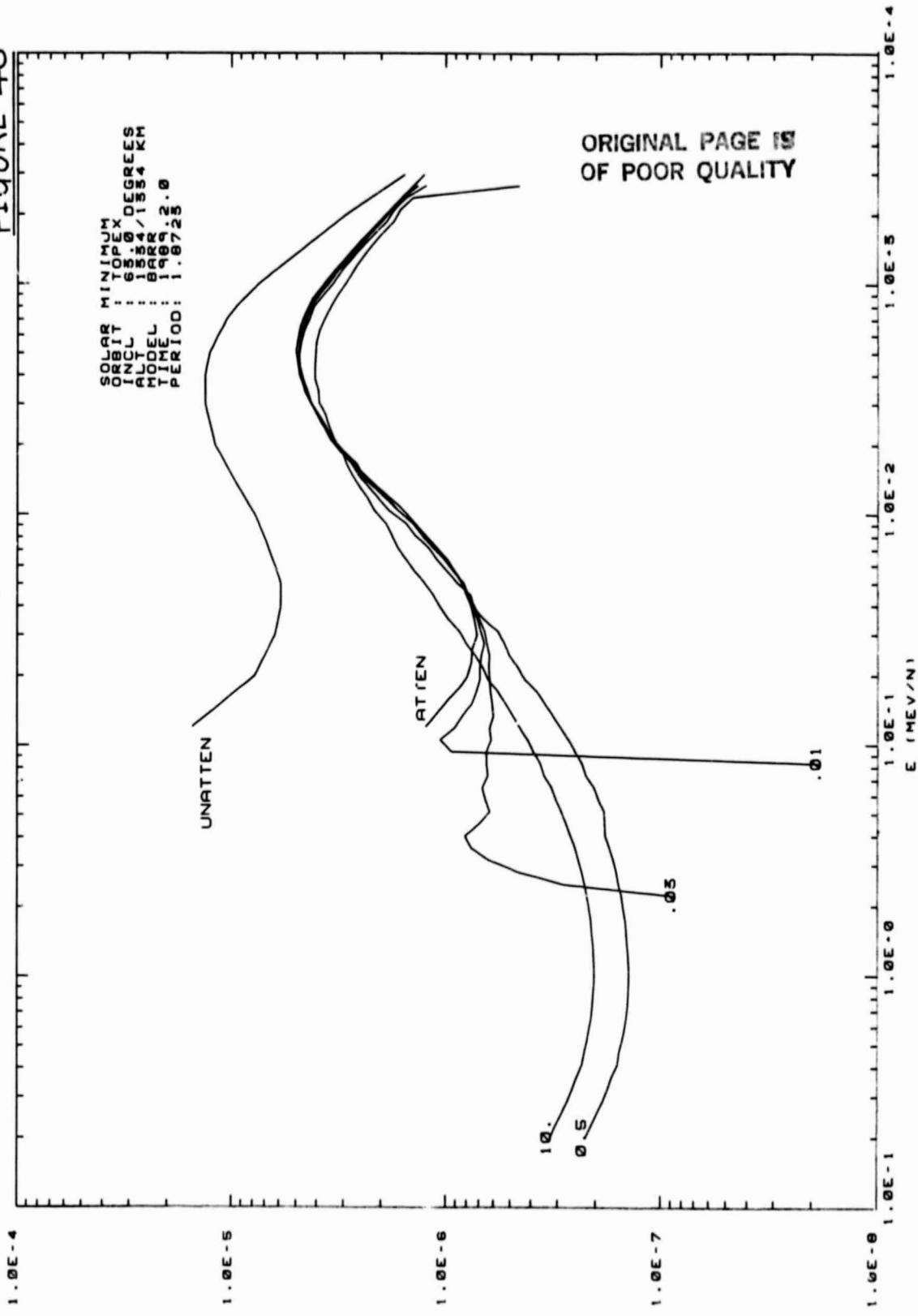
TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: AR  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=18 A=39.94

FIGURE 45



MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: K  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z = 1q$   
 $A = 39.10$

FIGURE 46



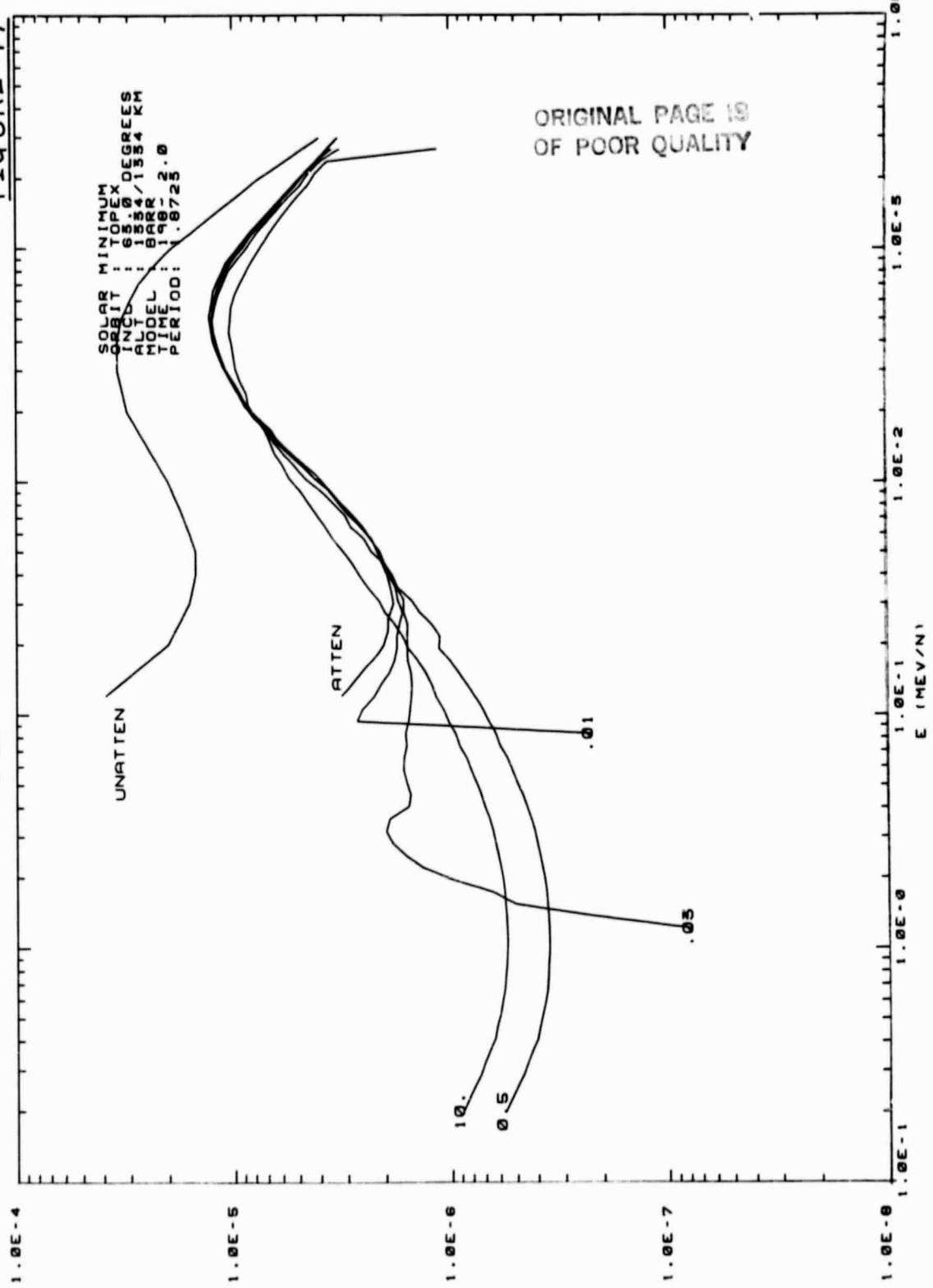
ORIGINAL PAGE IS  
OF POOR QUALITY

NASA-GSFC, 1984

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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: CA  
Differential Flux Emerging Behind Spherical  
Aluminum Shields  
 $Z=20$     $A=40.08$

FIGURE 47

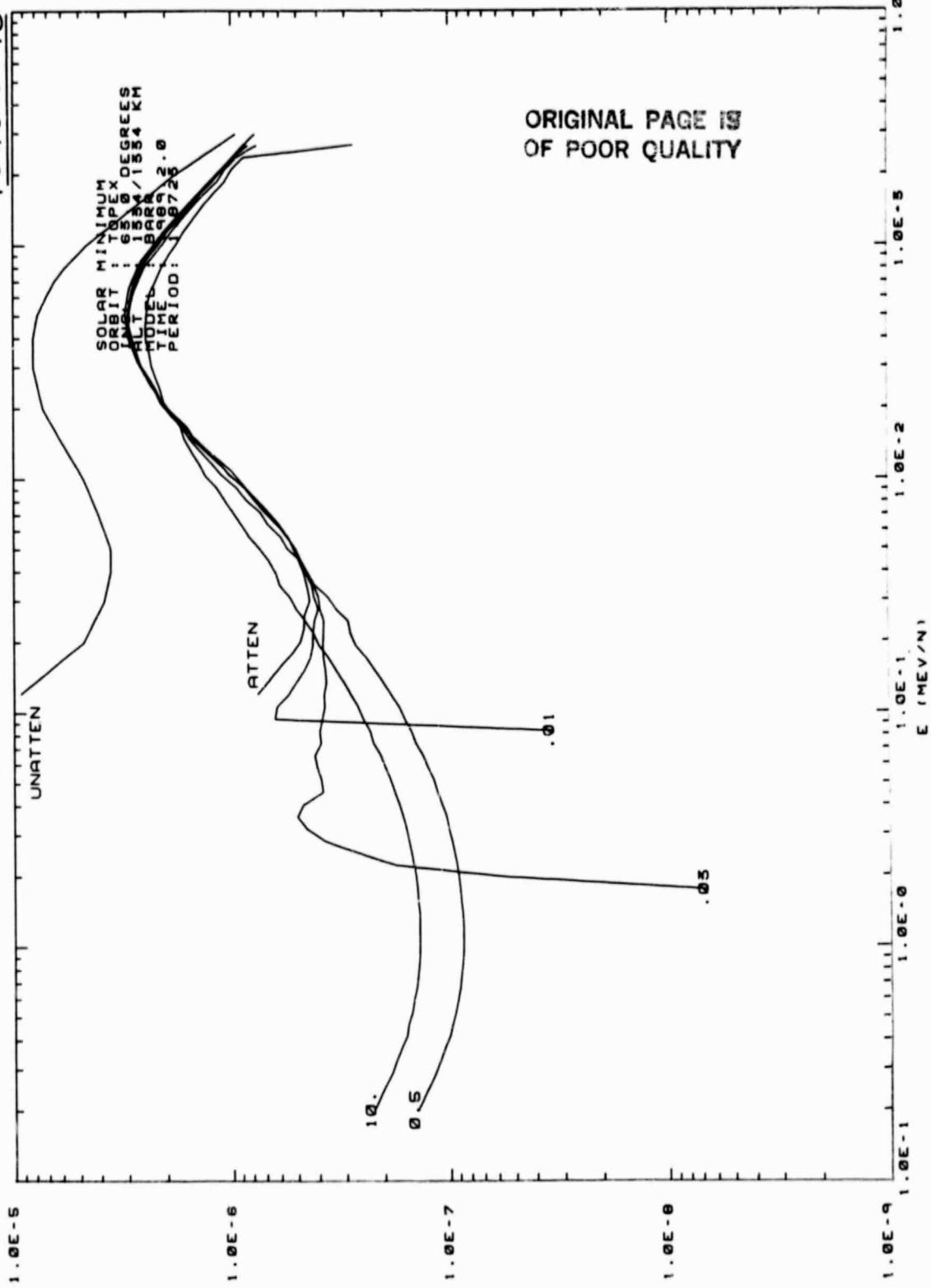


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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: SC  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z-21 A-44.96

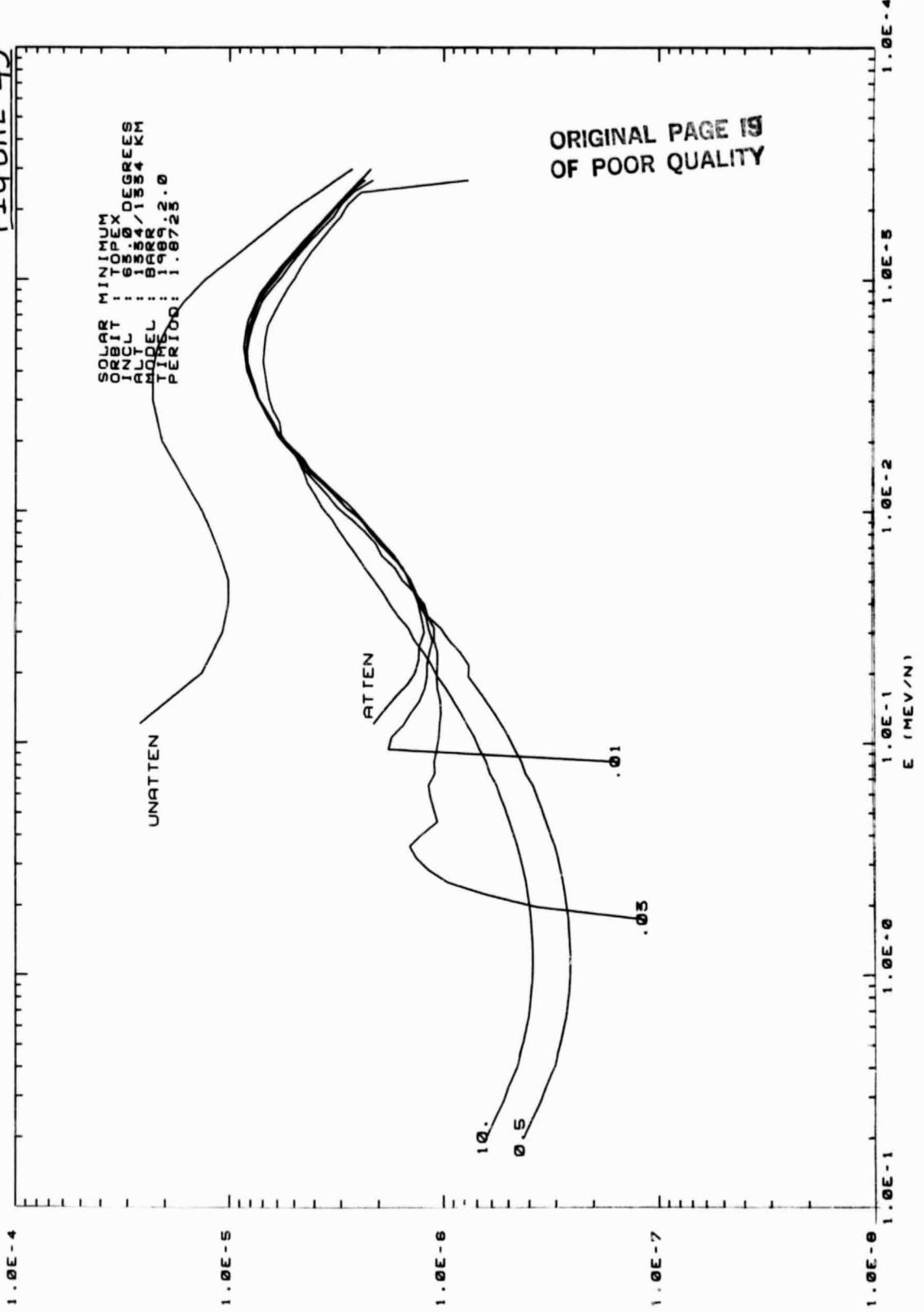
FIGURE 48



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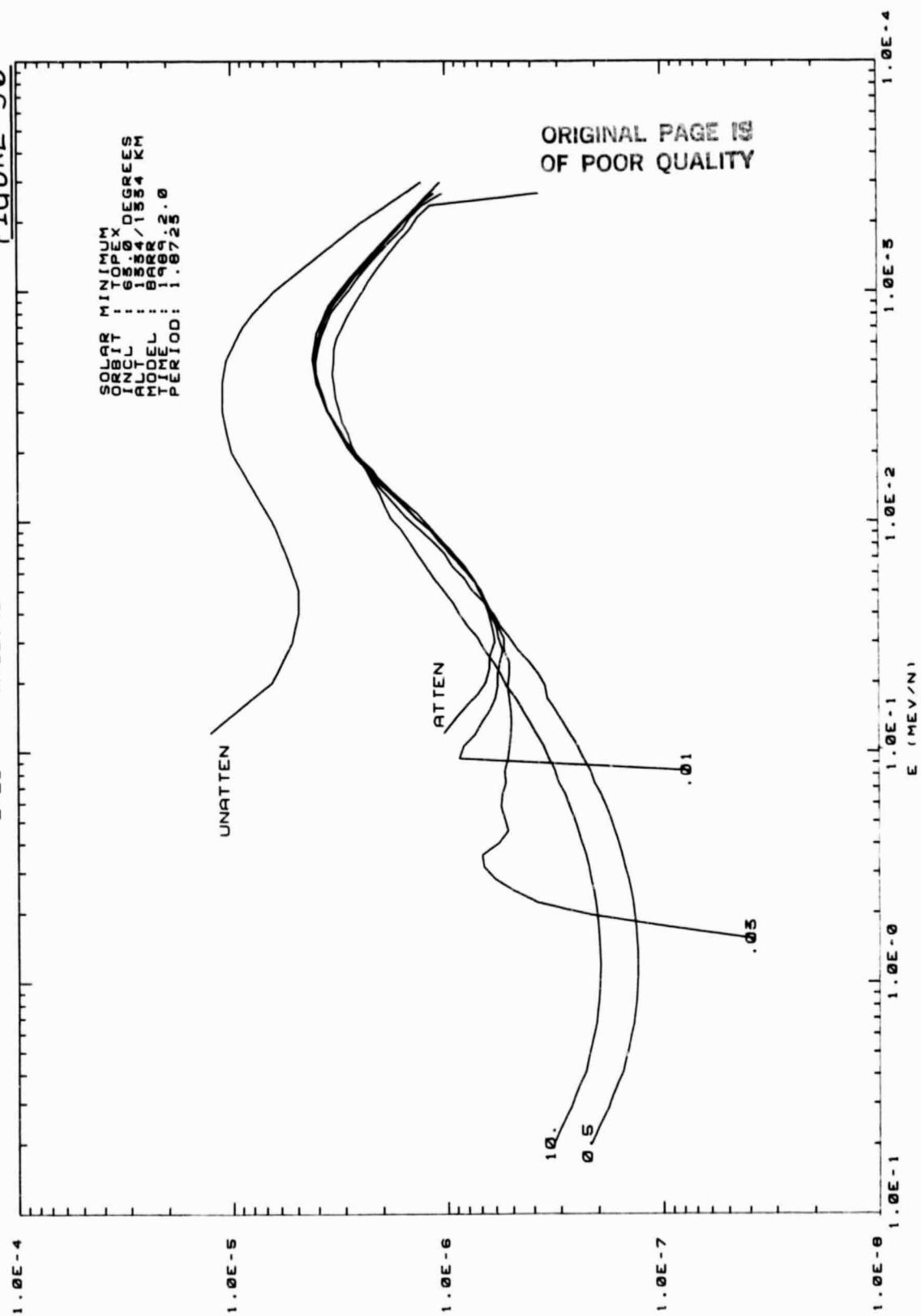
TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: Ti  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=22 A=47.90

FIGURE 49



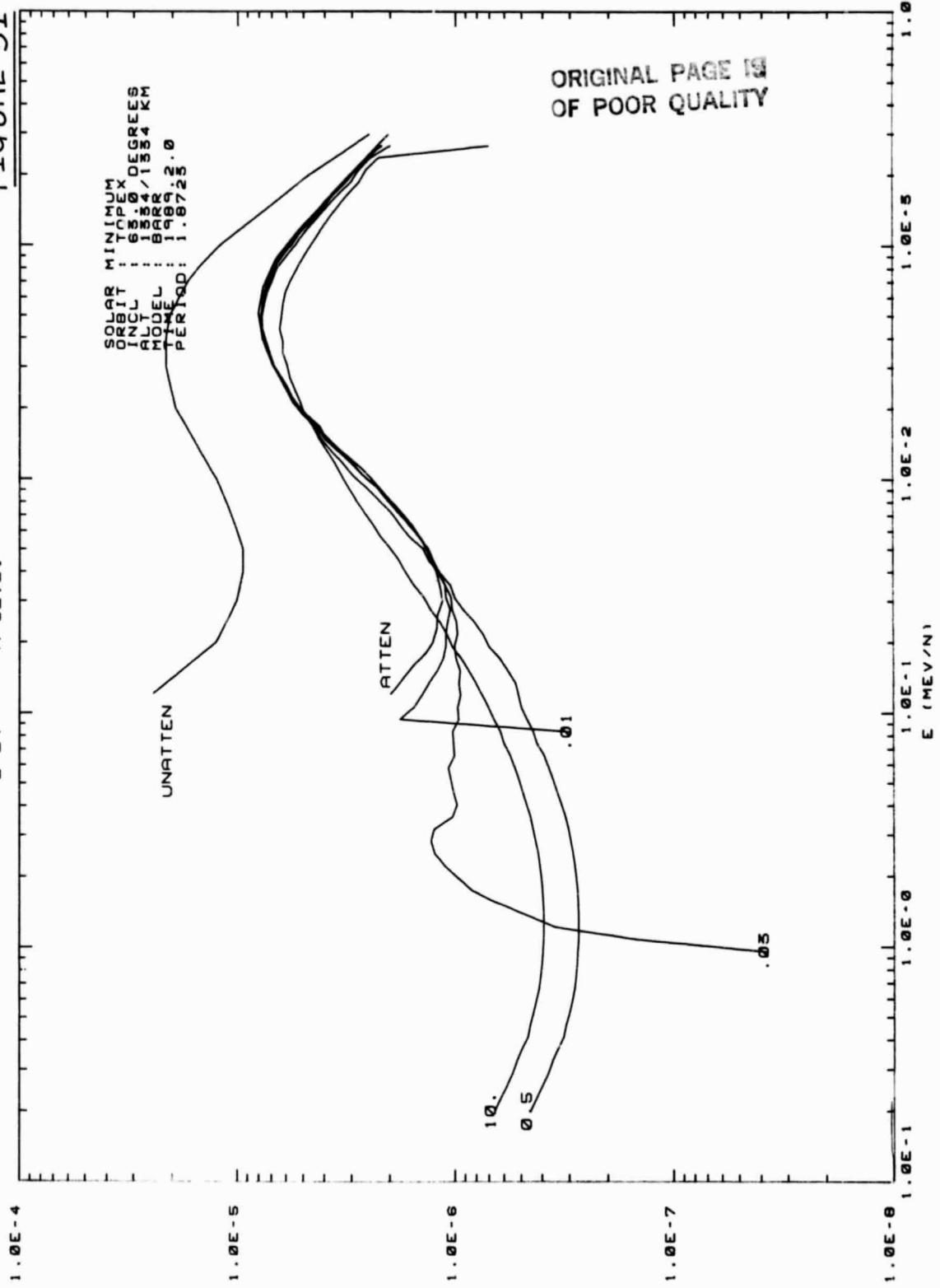
TOPEX COSMIC RAY ANALYSIS FOR:  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR:  
V  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
Z=25  
A=50.95

FIGURE 50



TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: CR  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=24  
A=52.01

FIGURE 51



DIFF FLUXES (PARTICLES/CM<sup>2</sup>\*DAY\*MEV/N)

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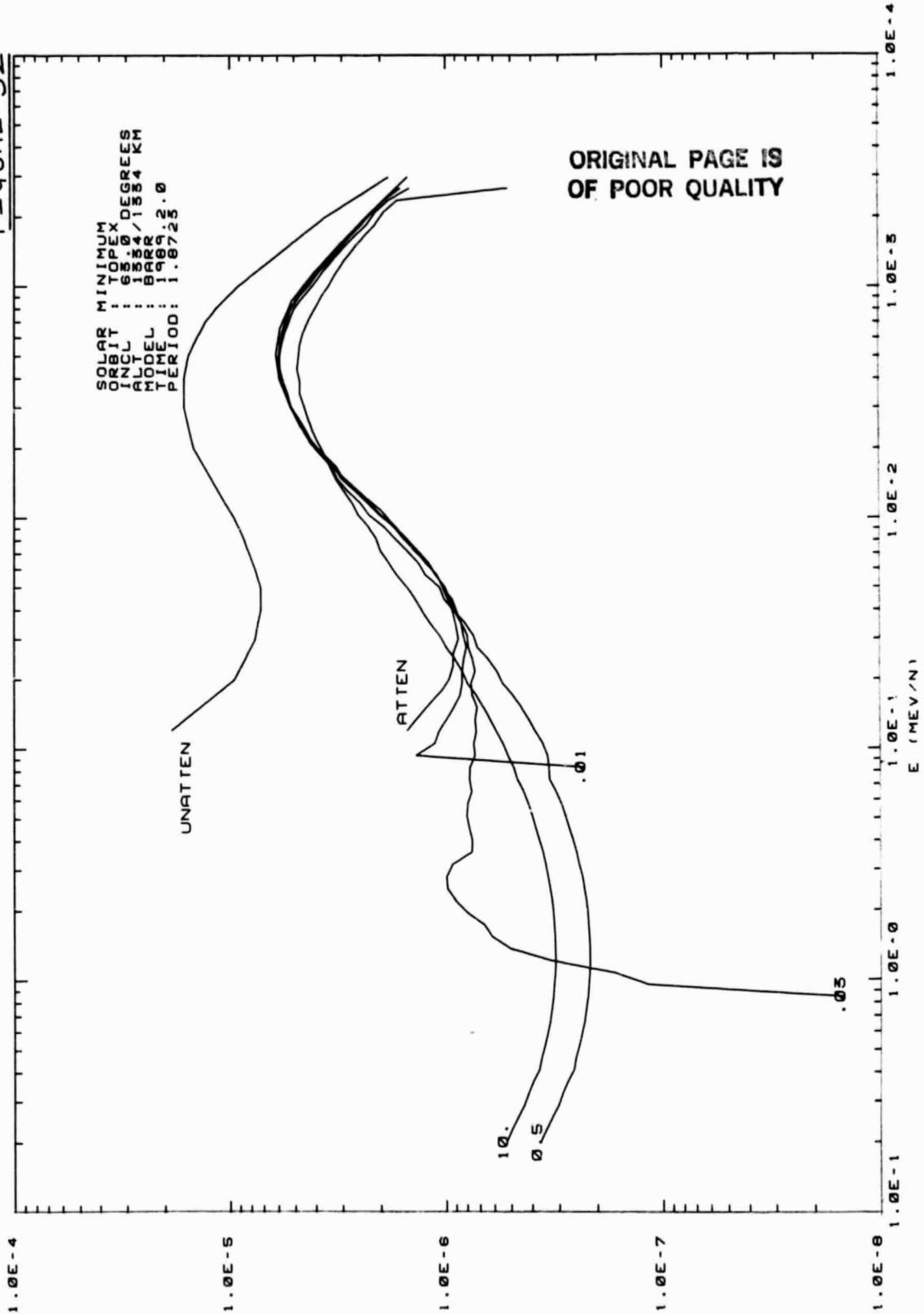
NASA-GSFC, 1984

MAGNETOSPHERIC TOPEX COSMIC RAY ANALYSIS  
DIFFERENTIAL FLUX ENERGIZED BEHIND SPHERICAL  
ALUMINUM SHIELDS

Z=25

A=54.94

FIGURE 52



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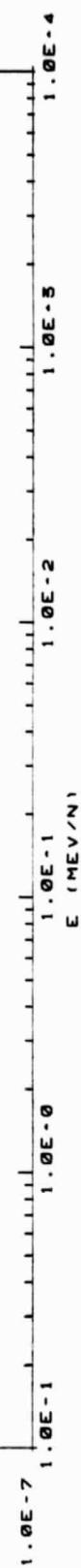
TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: FE  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z = 26$   
 $A = 55.85$

FIGURE 53

SOLAR MINIMUM  
TOPEX  
ORBIT : 6854 / 1584 KM  
INCL : 0 DEGREES  
MODEL : 1989.2.0  
TIME : 1.0E+0  
PERIOD :

ORIGINAL PAGE IS  
OF POOR QUALITY

DIFF FLUXES (PARTICLES/CM<sup>2</sup>\*2\*DAY\*MEV/N)

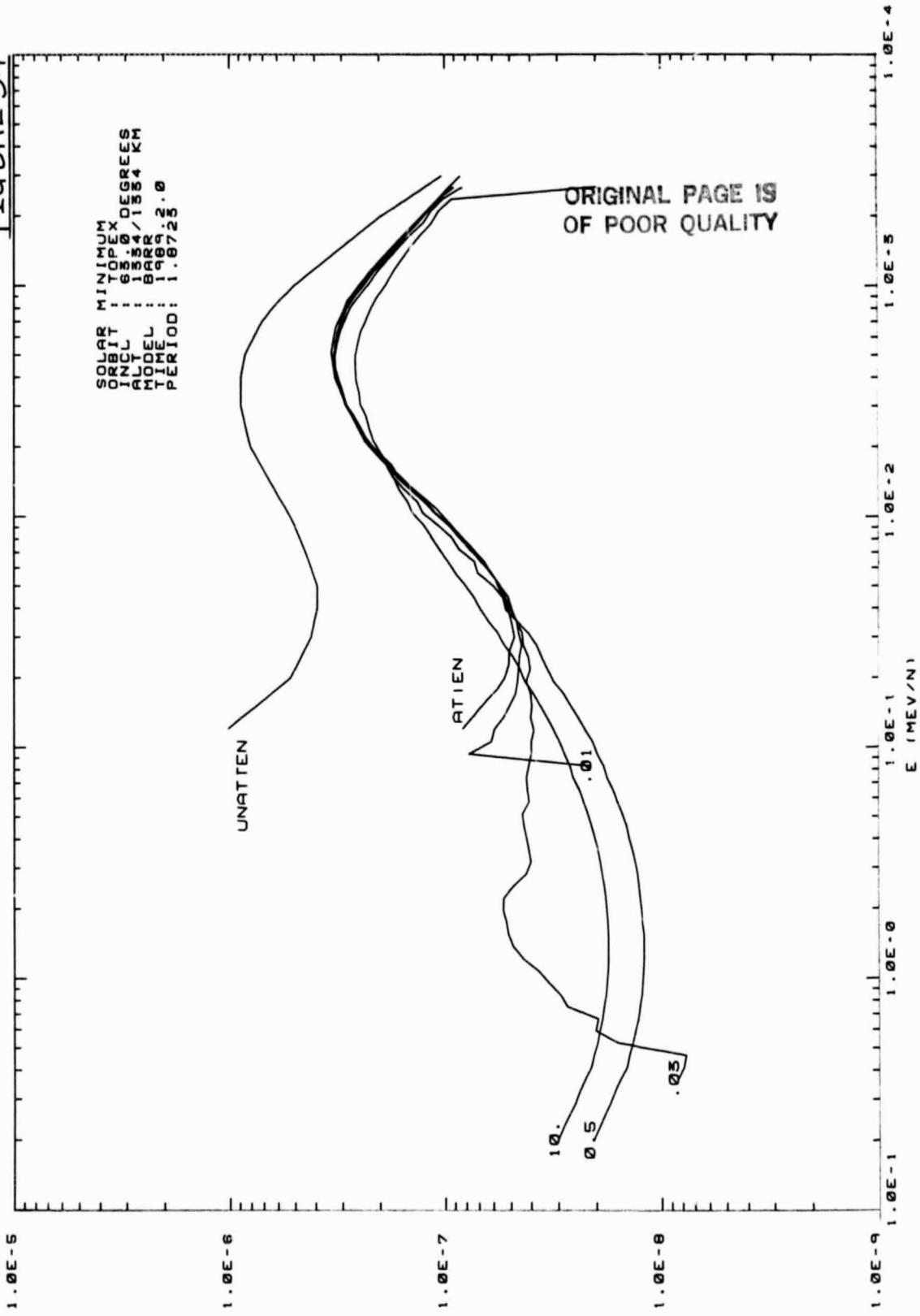


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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: CO  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
Z=27 A=58.94

FIGURE 54



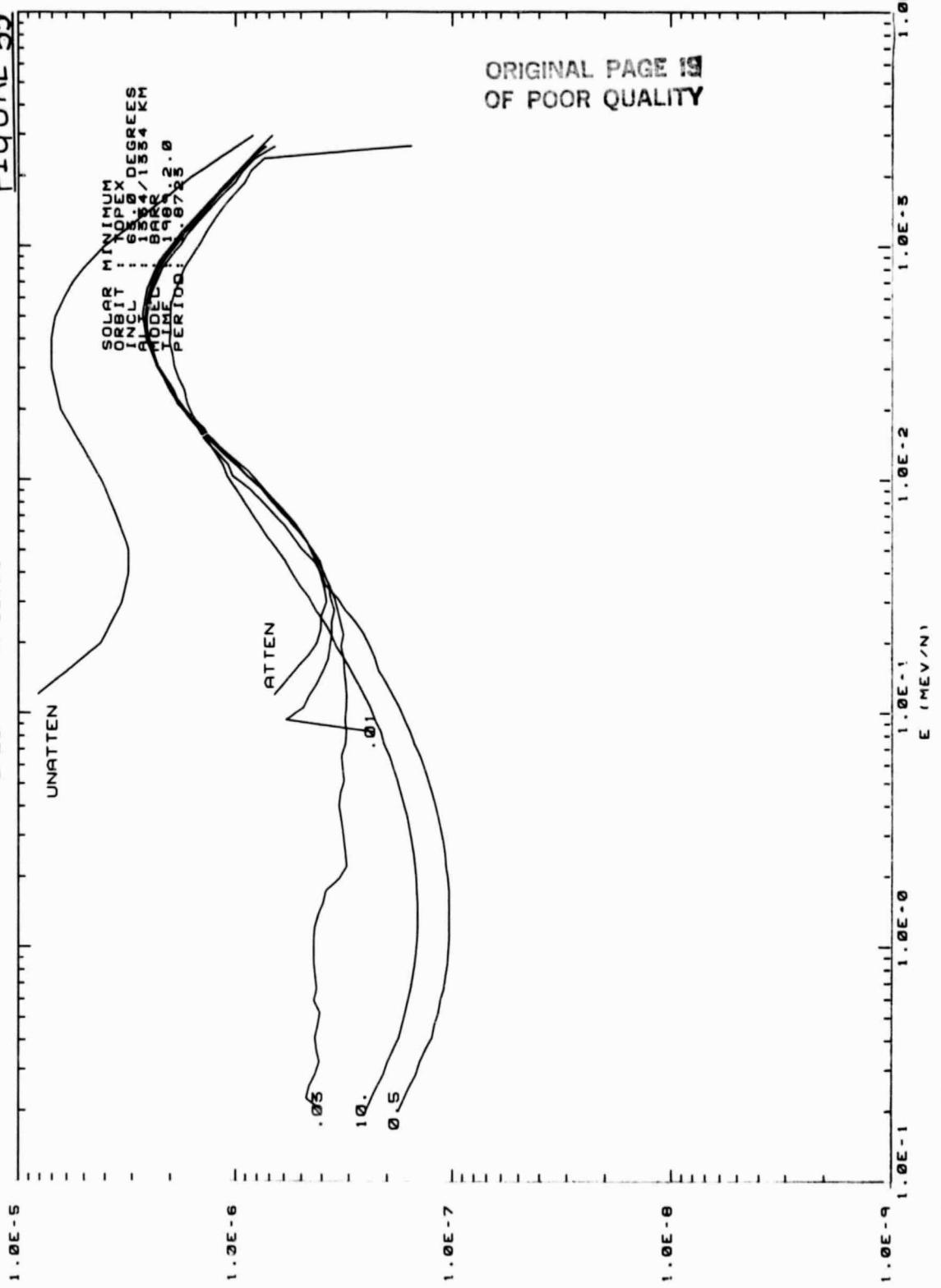
DIFF FLUXES (PARTICLES/CM<sup>2</sup>\*SR\*DAY\*MEV/N)

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TOPEX COSMIC RAY ANALYSIS  
MAGNETOSPHERICALLY ATTENUATED SPECTRUM FOR: Ni  
DIFFERENTIAL FLUX EMERGING BEHIND SPHERICAL  
ALUMINUM SHIELDS  
 $Z=28$   
 $A=58.71$

FIGURE 55



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